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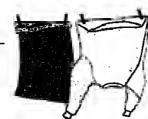
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US economy

The omens of recession



Lather over laundry

Making a case for phosphates



Air services

A deal that pleased no one



Today's surveys

Information technology Armenia

Section III & Pages 23-26

WEDNESDAY JUNE 7 1995

Problem loans at Japanese banks run to Y40,000bn

The full scale of Japan'e bad debt problem was far worse than previously thought, Yoshimasa Nishimura, director general of the Finance Ministry's banking bureau, said. Total problem loans at the country's banks amounted to about Y40,000bn (\$469bh), a sum equivalent to almost 10 per cent of the country's gross domestic product. Page 14

Yeltsin seeks energy investment: Russian president Boris Yeltsin signalled an increasing Rus-sian openness to foreign investment in its asset-rich but crisis-prone energy sector. Page 14; A world concern, Page 2

Schwarz Pharma moves into US: Fast-growing German pharmaceutical company Schwarz Pharma announced two US acquisitions worth \$294m as part of its strategy of developing

business outside Europe. Page 15 Tokyo cuit leader charged with murder



Shoko Asahara (left), leader of Aum Shinri Kyo, the Japanese doomsday cult, and six of his followers were indicted on charges of murder and attempted murder for the Tokyo subway nerve gas attack in March. Prosecutors accused him of masterminding the attack; the six others were accused

of making the sarin nerve gas and releasing it in the attack, which killed 12 people and injured 5,500.

El Corte ingle's tipped to buy rival: Spanish retail group El Corte inglés is today expected to acquire former rival Galerias Preciados, which last year applied for protection from creditors. Page 15 Nafta ministers to discuss Chile: Trade

ministers from the US, Canada and Mexico meet today to discuss Chile's bid to join to the North American Free Trade Agreement, Page 14 EU and Japan reach deal on cars: The EU

and Japan reached agreement on measures to

improve European access to the Japanese markets for cars and car parts. Page 7 VW plans joint venture in Israel: Volkswagen of Germany and Israel's Dead Sea Works plan a joint venture worth up to \$600m to produce and sell

magnesium.-Page 7 ... Belling opens way for foreign banks: China cleared the way for five foreign banks to establish

branches in Beijing. Page 4.

Incentives sought to scrap old cars: The UK motor trade called on the government to follow France and Spain in offering financial help to motorists to encourage the scrapping of old

Record profits from Nuclear Electric: State-owned UK power ntility Nuclear Electric strengthened the prospects for a successful privatisation by announcing operating profits up 53 per cent to a record £1.2bn (\$1.9bn). Page 15

S Africa unions show strength: More than 50,000 trade unionists seeking to influence new labour relations legislation marched through Johan-nesburg in the biggest display of political strength since last year's general elections. Page 5

FT-SE 100 index ahead of today's meeting 3.500

London share prices move further ahead Share prices edged further forward in London. ignoring nervousness between Bank of England governor Eddie George and chancellor of the exchequer Kenneth Clarke, The FT-SE 100 index climbed 3.4 points to 3,380.0, its fifth straight gain and a 15-month high. Wall Street gave European markets a fresh boost when the

Dow Jones Industrial Average responded to a fresh burst of buying interest. In early afternoon trading the Dow was 11.07 points up at 4,487.62. London stocks, Page 34; World stocks, Page 38

Seles to play again: Former world number one woman player Monica Seles will return to tennis for an exhibition match against Martina Navratilova on July 29. The venue has not been announced. Seles has not played since being stabbed during a tournament in Germany two years ago.

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Tests reveal fault in GE engines for Boeing 777 By Michael Skapinker in London and Tony Jackson in New York

The General Electric engines being built for British Airways' Boeing 777 aircraft have run into difficulties which were revealed when bird carcasses were fired

into them during testing. GE said yesterday that firing the bird carcassee, which is a standard feature of the testing process, had resulted in an unexpected degree of imbalance in the engine's fan. Modifications were required to ensure an even flow of air to the fan.

The first Boeing 777 to enter service is due to make its maiden flight from London to Washing-ton DC today. That flight, oper-eted by United Airlines, will not be affected by the GE announcement, as the United Boeing 777 bas engines from GE's rival, Pratt & Whitney of the US.

BA said yesterday that GE and Boeing still bope to deliver the first of the airline's 777s in September, as planned. BA hes ordered 15 Boeing 777s and has options on another 15. It is the second biggest customer for the aircraft after United, which has

firm orders for 34 and options on these problems now than when another 34.

BA surprised the industry in 1991 when it ordered the GE engines for the 777 in preference to those of Rolls-Royce, the UK manufacturer which had been its fevoured supplier.

BA plans to use the aircraft,

on flights from the UK to the Middle East and to the eastern part of North America. GE said yesterday the level of testing for the engines had been

which carry up to 400 passengers,

BA the safest, most trouble-free engine there is." The problems are a further embarrassment to GE after simi-

the engine is in service. We offer

lar difficulties earlier this year in the closely related technology of gas turbines for power stations. Critical parts in its F-series turbines had to be recalled from customers in the UK and Korea. The Boeing 777 is the world's largest twin-jet passenger aircraft. The engines for the aircraft are so large that the

fuselage of a Boeing 737 could

pass through their outer casing. Rolls-Royce, which has sold engines for Boeing 777s to Cathay Pacific, Thai Airways International, Emirates and Transbrasil, said yesterday that testing was proceeding successfully. The company said firing birds into its engines had not revealed any difficulties. "Our strategy is to con-

and let our competitors concentrate on theirs," Rolls-Royce said. The first Boeing 777 to be powered by the Rolls-Royce engines made a successful flight in Seattle late last month. Thai Airways

centrate on our own programme

is expected to be the first airline to begin commercial flights with a Rolls-Royce powered Boeing 777

in January next year. The 777 is Boeing's first new aircraft in 13 years, designed to compete with Airbus Industrie's A330 and A340 and the McDon-nell Douglas MD-11. Although Boeing is the world's largest aircraft manufacturer, with over 60 per cent of sales, Airbus, the European consortium, last year won more orders.

Saudia Arebia Airlines is believed to be close to placing an order for 22 Boeing 777s.

Move comes as Britain outlines conditions for keeping troops in Bosnia

said: "It is better to bring out

Serbs set to free UN hostages

By George Parker and Bruce Clark in London, and Laura

Bosnian Serbs were poised last night to release another 58 United Nations peacekeeper bostages after pressure from Western governments and intervention by the Serbian government.

The expected release followed negotiations between the Bosnian Serbs and Serbia's president Slobodan Milosevic who put pressure on his former protégés to free all the UN peacekeepers in their custody. The Bosnian Serb move came

after Britain set tough conditions for keeping its troops in Bosnia, insisting they would not remain unless they had "minimum" con-sent from the Bosnian govern-ment and the Bosnian Serbs.

A bns with 58 UN peacekeepers detained by the Bosnian Serbs arrived in tha town of Zvornik on the Bosnian-Serbian border and the detainees were expected to be handed over to Serbia last night. The bostages were among

nearly 400 captured by tha Bosnian Serbs in retaliation for Nato air strikes against an ammunition dump. If the 58 troops, believed to be mostly Ukrainian and French, are released, about 200 will remain in custody. The US, which has been mov-

ing reinforcements to Italy for possible use in Bosnia, said yesterday that it had stopped receiv-ing beacon signals which might have come from a US fighter pilot whose F-16 aircraft was downed over Bosnia last week. A confirmation that the pilot

was dead would increase the chances of the US taking tough action against the Bosnian Serbs. The US administration is under pressure from Congress to punish the Serbs, despite west European and Russian concerns to avoid escalating the conflict.



Andrei Kozyrev (left) said Douglas Hurd (right) reassured him London did not want the UN to become a combatant in the conflict

London's new concern to avoid getting drawn into all-out war was also reflected in a meeting between senior UK ministers and Mr Andrei Kozyrev, the Russian foreign minister.

Mr Kozyrev said after talks with Mr Douglas Hurd, UK for-eign secretary, and Mr Malcolm Rifkind, UK defence secretary, that he had been assured Britain did not want the UN to become e

combatant in the conflict.

The Russian minister will have further talks with Mr John Major, the UK prime minister. todey on Bosnia and Russian

relations with the West. Mr Kozyrev wants reassurances thet the despatch of 10,000 extra western troops to Bosnia was not a signal of a plan to fight the Serbs, Russia's traditional ally.

Mr Rifkind denied strongly in the British parliament that any decision to withdraw from Bosnia had been taken. He said the purpose of sending reinforcements was to ensure the safety of the existing UN peacekeeping force.

However an increased concern to avoid getting drawn into open war was spelled out by British

Bosnian policy among senior UK ministers earlier this week. "There has to be a minimum level of consent by the parties," said one official, setting out Britain's view of the preconditions for a continued UN role in

meanwhile, cast doubt on the

future of the UN mission, saying

its end could be in sight. "The UN mission is becoming more tenuous, both in terms of quality and potential duration," said the minister, Mr Muhamed Sacirbey. 'We have to keep in mind that there is e real possibil-Bosnia's foreign minister, ity the UN mission in Bosnia

GM to set up works councils in European operations

By Robert Taylor, Employment Editor

General Motors plans to set up consultative works councils for all employees in its European operations in line with a Euro-pean Union directive that comes înto force next year.

The decision marks an important breakthrough in the development of pan-European works councils, which are representative bodies providing information and consultation for workers on

company strategies.
US companies bave until recently strongly resisted the introduction of such bodies. describing them as a threat to

their right to manage. But now that GM's Detroit management has given the go-ahead, an increasing number of US corporations are likely to follow its example. In March, Ingersoll-Rand, the industrial construction equipment group, became the first US company to announce plans to set up a works council for European employees.

All companies with 1,000 employees and with more than 150 employees in at least two EU member states must establish a works council by September 1996, or have one imposed on them. General Motors Europe said it

> Continued on Page 14 Aid songht for scrapping old

Labatt agrees C\$28.50 per share offer from Interbrew

By Bernard Simon in Toronto and Roderick Oram in London

Interbrew, the privately owned Belgian brewer, has launched an unexpected but aggressive foray into North America with a C\$2.7hn (\$1.98hn) bid for John Labatt, the Toronto-based beer and entertainment group. Labatt

has agreed the offer.

The deal, if successful, would make Interbrew, best known for Stella Artois lager, one of the few truly international brewers along with Heineken of the Netherlands. It would rank sixth in volume terms in the world, according to Canadean, the drinks

Besides its core Canadian business. Labatt bas a well-established US distribution network, a 22 per cent stake in Femsa Cerveza, Mexico's second-biggest brewer, and interests in Italy and in the UK, where it has a chain of more than 500 pubs.

Interbrew has strong positions in Belgium, France and the UK, where Stella is brewed under licence by Whithread, and it has been investing in eastern Europe and China. It said there was wide scope for it to sell Labatt beers, including Rolling Rock, in Europe and its own beers in North America.

Interbrew emerged yesterday as the "white knight" which Labatt sought to fend off a hostile bid from Onex, the Canadian leveraged buyout firm.

Labatt said that it bed con-ducted a "well-attended" anction, and has now agreed not to negotiate with any other potential bidder. It will urge shareholders to accept the Interbrew offer which, at C\$28.50 a share, is well above Onex's C\$24 offer. Mr George Taylor, chief executive, eaid that the Interbrew deal would benefit all Labatt's constituencies - shareholders, employ-

ees, customers and partners. Mr Michael Palmer, analyst at Research Equity in Toronto, said that the Interbrew offer is "about as good as it gets". Mr Palmer noted that Labatt has a substantially greater value to Interbrew than to Onex, which has no other brewing interests that might benefit. Onex said yesterday it would

not increase its offer. With Labatt tacitly up for sale for several years, a number of

CONTENTS

other brewers had looked at buy-ing it. Given interbrew's epparently fully priced offer, analysts thought a competing bid from

An Interbrew spokesman said the bid would consist of C\$1.1bn in cash largely from its own resources plus C\$1.6bn in debt provided mainly by a group of North American banks. However, Interbrew is expected

to dispose of Labatt's non-brewing assets, which analysts value at C\$800m-C\$1bn. They include an international concert promoter, Canadian cable-TV stations, and 90 per cent of the Toronto Blue Jays baseball team. The Interbrew offer requires the approval of holders of twothirds of Labatt's shares. If a bet-

ter bid materialises, Labatt has agreed, among other things, to give the Belgian company an option to buy Moretti, Labatt's Italian subsidiary for C\$165m. Interbrew said it had begun negotiations with Labatt two months ago and was already engaged in due diligence when Onex bid.

Lex, Page 14

has demerged, by way of a stock dividend to its shareholders U.S. Industries, Inc.

Hanson PLC was advised by

ROTHSCHILDS

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It was an inauspicious start for the nine eastern and central European countries waiting in the queue for admission to Europe's exclusive club. The crunch came after six hours devoted to discussing their problems,

including an extended lonch. No, the French presidency announced, the scheduled press conference would not take place. The EU's meeting of internal market ministers had run out of

Ministers from Poland, Hungary, the Czech Republic, Slovakia, Bulgaria, Hungary, Estonia, Latvia and Lithuania were in Luxembourg to meet their EU counterparts to discuss their prospective membership of the

EU. "We were ready for a press con-ference. But they said there was no more time." said Mr Laszlo Pal, Hungary's minister for industry and com-

merce, with a shrug.

Tucked away in a box-sized office with one phone and too few chairs, the Hungarian minister put a brave face un the day's proceedings. "My feeling is that overall it has been

"It was much better than on previous occasions," Mr Pal said.
Mr Vladimir Dlouby, minister of industry and trade for the Czech Republic, was similarly upbeat. There have been times when it has felt as though this is a one-way street.

But I think the European Union

'you have to adjust as well'. We said again that absorbing the new mem-bers with the Common Agricultural Policy in tact would have disastrous ences for us," he said.

The Austrians, who joined the EU in January, and Germans were given the task of providing useful tips on what to do. Mr Johannes Ludwig, the German

affairs, presented the problems faced by Bonn after the absorption of the eastern German Länder into a united Germany. His was a short but sobering list

secretary of state for the economic

which highlighted the administrative boles which needed to be plugged. These included the transfer of thon-

sands of civil servants as well as hundreds of training programmes to create an administrative structure, the creation of laws to govern real estate and property ownership and the deployment of thousands of customs officials to apply EU regulations on

the eastern front. "I think the German experience was a unique one. Nowhere else would it be possible to replace one set of laws with another in the space of one day.

We can listen to this but we can't practice it," Mr Pal said. But hy all accounts the ice was broken between ministers of the old

and new over lunch. "During the lunch I felt for the

All appeared to have ended the day a little wiser. I think they fully understand the eastern European str-nation. On that basis there appears to be a clear political will to get to accession as soon as possible." Mr Pai

dialogue. It may be the effect of Aus-

tria and Sweden joining. I don't

know," said Mr Dlouby.
"We learnt what the sensitivities

were, what concessions should be made to them and that we need to

accommodate each country as it

makes progress at its own different pace," said Mr Ian Taylor, Britain's

minister for trade.

How and exactly when were left for another day.

EUROPEAN NEWS DIGEST

Sweden's repo rate rises again

Sweden's central bank, the Riksbank, renewed its battle against a rising inflation rate yesterday by lifting short-term interest rates by a quarter of a percentage point.

The move, welcomed by the markets, came after Swedish inflation rose 0.7 per cent in April, pushing annual inflation above the bank's 3 per cent inflation ceiling to 3.3 per cent. The increase in the bank's key repo. or repurchase rate; to 8.66 per cent from 8.41 per cent means short-term interest rates have risen by more than a percentage point since February.

The bank said the latest rise was necessary because high capacity utilisation and the weak krona threatened to stoke inflation further. Bond yields have stayed high and the krona weak because markets are not convinced the country is doing enough to tackle its large deficit and stabilise state debt. A further SKr16bn (\$2.2bn) of new savings and tax increase: are expected to be outlined on Monday when Mr Goran

Persson, finance minister, presents plans to meet the convergence criteria for the final stage of European monetary Christopher Brown-Humes, Stockholm

EU agrees databases draft law

European Union internal market ministers yesterday agreed on a framework for the legal protection of databases aimed at combating piracy and unauthorised use of information. The draft directive is geared to protect database creators as well as investors and to harmonise widely different legal systems throughout Europe. Only the UK and Ireland offer full copyright protection on all databases. A European Commission official said the EU needed to provide a well-defined level of protection to ensure an attractive environment for investment by the fast-growing database industry. The European Publishers' Council said the draft

databases where none exists in Norway forces end to pay strike

directive introduced protection against "unauthorised use of

The Norwegian government yesterday ordered arbitration in a pay dispute that would have grounded more than 500 domestic and international flights today by Scandinavian Airlines System (SAS) and the domestic carrier, Braathens.

The labour minister, Mr Gunnar Berge, told Norwegian television the strike, which also affected hospitals and other sectors, was damaging to society at a time of serious flooding in parts of the country.

Mr Ame Sognvoll, leader of the Association of Professional Employees, said he was disappointed the government had intervened. He said the week-old strike at hospitals and schools would end as soon as possible. It was to have expanded today to include air traffic controllers. The government at the weekend forced 2,500 striking police back to work to help in the floods. Reuter, Oslo.

Italian ex-minister arrested

Mr Antonio Gava, Italy's former interior minister, was arrested yesterday for alleged corruption, the second time he has been detained in the past nine months.

Police arrested Mr Gava, interior minister from 1988 to 1991, at his home in Rome at the request of prosecutors in the town of Torre Annunziata, south of Naples. Mr Gava, 64, a former Christian Democrat, is accused of taking a L300m (\$183,000) bribe for awarding a contract to rebuild a hospital destroyed Reuters, Rome. in the 1980 earthquake.

Chirac and Santer set agenda

The French president, Mr Jacques Chirac, and European Commission president, Mr Jacques Santer, agreed yesterday on the main issues for this month's European Union summit at Cannes, according to Mr Chirac's office. The pair met for the first time since Mr Chirac assumed the presidency in May. to discuss the forthcoming Group of Seven and EU summits.



French president Jacques Chirac welcoming European Commission president Jacques Santer to Paris yesterday

Mr Chirac's office said they agreed the EU should discuss: plans for next year's conference on reform of EU institutions, launching trans-European transport projects as part of an economic growth initiative; funding for EU aid to eastern Europe, the Mediterranean and the third world; the future of EU broadcasting quotas, the path towards Emu. Mr Chirac has invited EU leaders and Mr Santer to dinner in Paris on Friday to discuss the Cannes summit.

ECONOMIC WATCH

Greek inflation falls to 9.8%



Greece's annual inflation rat dropped to 9.8 per cent in May but is not expected to fall further until August, the Economy Ministry said yesterday. The rate declined to 9.9 per cent last month, the lowest for 22 years. Lower food prices in June and July are expected to be offset by price increases for transport and public utilities. Electricity prices and domestic air fares are due to

The skin of the model of in a more fundamental

rise by an average 7 per cent in July. As part of efforts to bring inflation below 8 per cent by the year-end, the Trade Ministry has stepped ip measures against profiteering by fruit and vegetable

wholesalers, who increased their prices last year hy an average 30 per cent. Greek families spend more than 40 per cent of their income on food and sales of fresh produce some during the summer. The drachma is forecast to decline by only 3 per cent this year against the Ecu. Kerin Hope, Athens Kerin Hope, Athens Norway recorded a current account surplus of Nkr2.908bn (\$466m) in March compared with a surplus of Nkr1.432bin a year earlier, the Central Statistical Bureau reported. Romania's current account deficit jumped to \$433m at the end of March from \$165m at the end of February and \$93m in

the first quarter of 1994, the central bank said. Finland's current account in April showed a surplus of FM700m (\$162m), up from a revised FM100m in March and compared with a FM300m deficit a year earlier, the Bank of

Russia's oil: a world concern

John Thornhill on a sector with transforming potential beyond the country's borders

r Leonid Fedun, the vice-president of Lukoil, Russia's largest privatised oil company, sits back in his black leather chair in his high-rise office and chuckles. "One journalist wrote that we planned to buy Exxon within 15 years." he says. "We were very surprised by this statement, It will be

As befits any statement from a former psychological warfare officer from the Dzerzhinsky military academy, it is difficult to distinguish threat from bluff. But there is no ambiguity about the ambition of Rus sia's new generation of energy company executives.

"The rule of life is that new companies are more hungry than those which have been on the market a long time. We are going to be very active and win our place in the sun," Mr Fedun says.

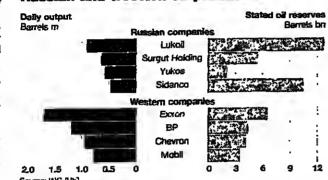
Lukoil is perhaps the most aggressive and progressive company to have emerged from the vast corporate scramble that constituted the first wave of Russia's oil industry restructuring. But as that process draws to a close with the recent publication of a presidential decree, the country's oll barons are busy rationalising their assets and facing up

to the future. How they fare will help mould the form of Russlan capitalism and may have a declsive impact on attempts to stathe immediate future. The speed of the transformation could also influence the world industry, uncertain as to whether the Russian companies will use their vast reserves to become production powerhouses or whether their inefficiencles will undermine their ambitions.

"If we are to diversify the sources of oil and gas in the world over the next 15 to 20 years, then Russia is a prime opportunity," Ms Hazei O'Leary, the US energy secretary, told the International Energy Agency in Paris last

The presidential decree, which slotted the final pieces of the industry jigsaw into place, determined that Rosneft.

Russian and western oil producers



the giant state holding company which acted as a "hospi-tal for sick companies" but retained some other special privileges, should be turned into a joint stock company and privatised. The alternative proposal to retain Rosneft as a natlooal champion, such as Saudi Arahia's Aramco or

prevent environmental disasters such as the oil spill in the Arctic circle last November.
The industry also needs to

develop its downstream facilities. Refineries are under-utilised, which results in poor profitability. Western experts say Russia should emulate the US and western Europe and

Russian oilmen may well end up terrifying the hell out of a lot of western oilmen who have treated them with contempt'

Mexico's Pemex, was rejected. Mr Charbel Ackermann, vice-president of Boston Consulting Group, the management consultants who advised the Russian ministry of fuel and energy on the restructur-ing, says: "The discussion about the industry's structure has been resolved in favour of a privatised solution. You now have a group of privatised companies competing with each other, jealous about their margin for manoeuvre and in

favour of a reasonably free working market." But Mr Ackermann stresses that there will need to be substantial change at every stage in the oil producing, refining and marketing chain if the

vision of an effective and efficient industry is to be realised. Russia's oil companies desperately need to modernise their infrastructure, reverse the collapse of output - which has fallen by 47 per cent since peak production of 570m tonnes in 1987 - and act to

close marginal refineries to boost profitability. Those that remain need to produce lighter fuels for consumer use, rather than the heavy industrial fuels

duction deals may be more keen about downstream opportunities. British Petroleum, for example, is seeking its first service station site in Moscow. But the economics of the oil industry are still unattractive in spite of reforms. With rampant inflation, a penal tariff regime and artificially low

Some western oilmen, fed np with trying to strike deals in Russia, predict a cataclysmic

stations, Russia has just 9,000, according to BCG's estimates. Some foreign companies

for which demand is falling. It also needs to invest in network of petrol stations. While the US boasts 170,000 gas which have been rejuctant to enter into large-scale oil pro-

domestic oil prices there has been almost no incentive to they say is heavily criminal-ised and grossly inefficient. Russia, they say, may even become a net importer of oil if output continues to fall, infrastructure deteriorates further and domestic consumption starts to revive. element will be how quickly Russia can liberalise the indus-

outlook for the industry which

Perhaps the most decisive

In practice the relations between state and industry are intimate and intertwined. For example, Mr Yuri Shafranik, the minister for fuel and energy, was formerly a general director of a Siberian oil concern which now forms one of Lukoil's three chief oil producing units, and still sits on the parent company's board. At times, Russia's oil compa-

nies appear to pursue an assertive policy designed to ensure it gets a piece of the action throughout the former Soviet Union. It recently secured a 10 per cent equity stake in the Azerbaijan oil deal.

"The decisions recently by the privatised companies suggest they each have a clear agenda rather than

being part of a governmental cartel," says Mr Ackermann. Lukoil has big plans. It intends to raise a \$300m convertible bond soon and is aiming to raise several hillion dollars by selling 15 per cent of its equity on international markets next year.

more than just the state and employees to worry about. Their new constituencies include customers, competitors, shareholders and regula-

"If these managers can keep the show on the road when they are facing every conceivable type of problem then just imagine what they can du when things are running for them," says one oil consultant. They may well end up terrifying the hell out of a lot of western oilmen who have treated them with contempt."

A western oil expert is more cautions: "Russia's oilmen have done a lot of fast talking about what they intend to do but we shall now see whether they can deliver.



yesterday to mark the anniversary of the poet's birth Yeltsin delays over outspoken general

By John Thomhill in Moscow

President Boris Yeltsin has referred General Alexander Lebed's resignation letter to a group of senior government ministers for their consider-

Mr Yeltsin's measured response to the resignation threat from the controversial commander of Russia's 14th army emphasises the political sensitivities surrounding the popular officer, who is thought to he considering entering the presidential race next year.

Gen Lebed has established a reputation as a firm upholder of law and order in the tronhled Duestr region of the for-

mer Soviet republic of Moldova. Gen Pavel Grachev, Russia's defence minister, has already accepted the resignation of the controversial general, who has been a critic of the Chechen campaign.

Bnt Mr Yeltsin has now asked Mr Oleg Lobov, secretary of the influential Security Council, and Mr Andrei Rozyrev, the foreign minister. to assess the resignation and the situation in Moldova.

Gen Lebed, who disagrees with plans to withdraw the 14th Army from the Dnestr region, has said he would enter politics if he left the army - although he has not formally declared his presidential ambitions.

Czech central banker's exchange rate warning Czech Republic

By Vincent Boland in Prague

The governor of the Czech Republic's central bank yester-day called for a change in the government's fixed exchange rate policy to curb inflows of speculative foreign capital and to help reduce inflation, which is stuck at just under 10 per cent and shows little sign of

Mr Josef Tosovsky, the cen-tral bank governor, said the nment's commitment to a fixed axchange rate had attracted some \$30m in speculative capital since the beginning of the year, swelling the money supply and keeping inflation high. While some of the inflows can be absorbed by the economy, "too much is too much, quite frankly", he told a Financial Times conference on investing in the Czech Repub-

"It is not possible to have a fixed exchange rate and a financially open economy," Mr Tosovsky said. You have to give up one of these." If the fixed exchange rate is

to be maintained, he warned, economic policy would have to change to reduce aggregate demand in the economy, provide official support for exports and allow for the creation of budget surpluses. Speculative foreign capital is attracted to the Czech Republic

by high interest rate and infla-

tion differentials relative to

countries such as Germany and the US. The managed

exchange rate, resulting from

the fixing of the Czech koruna

against the D-Mark and dollar,

1 (19/1 in 150)

eliminates the exchange rate risk of repatriating that capital, giving huge profits to some speculative investors. The speculative inflows

resulting from exchange rate stability push up the money supply and hamper the central hank's attempts to reduce inflation. Mr Tosovsky said the econ-

The central bank governor ruled out an early floating of the koruna but said that "sooner or later we will have to think about a more market

omy was no longer able to absorb these inflows and that the bank was running out of options to neutralise them. "More stability leads to more

domestic demand. oriented exchange rate". The central bank is preparing for full convertibility of the currency for current account transactions and partial convertibility for capital account

GDP, Kes bn Estimated 1995 GDP growth, 3.5%

transactions. A new foreign exchange law introducing be in place by the final quarter of the year.

However, Mr Vaclav Klaus. the prime minister, has said the government remains com-mitted to a fixed exchange

The real appreciation of the koruna against the currencies of the country's main trading partners, as a result of the policy, is eroding the country's competitiveness. Exports grew by only 3 per cent in the first four months of this year, while imports of consumer goods soared on the back of strong

Mr Tosovsky said he expec-ted the trade deficit to reach around \$1bn by the end of the year, while continuing high revenues from tourism should leave the capital account in



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Section Contraction in the state

This Sunday, Italians are baing asked to vote on no fewer than 12 different referendums. Proposed by a series of different political alliances and pressure groups, the subjects range from the obscure and marginal to important issues with highly sensitive political

content. The most marginal question asks whether the state should be allowed to send members of the Mafia into house arrest outside their normal area of domicile. The most political is clearly that concarning the future of commercial television which directly affects the personal fate and media empire of Mr Silvio Berlusconi, the former prime minister

In between, the voter is heing esked to decide on arcane matters of trade union representation and the controversial issue of liberalised shopping hours. The scope of these referendums is so vast as to pose serious questions about whether any western democracy should allow such disparate issues to be lumped together and decided upon in a

ltalian referendums are by

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Robert Graham steers a course through the issues confronting the electorate in Sunday's referendums

Italy's 12 referendums UNION REFORM

Remove restrictions on union representation in public and private sectors (three referencement) sectors (three referendums). TELEVISION

Restrict TV ownership to dee channel

Cut advertising slots dual of firms.
End advertising monopoly

Allow Rai, state TV/radio are privatised RETAILING Liberalise shopping hears, Cut red-tape in commi CRIME End state's use of house an

Revoke second round run-off voting in local elections.

nature abrogative and thus voters are being asked whether or not laws should be abolished. However, since the Italian legislative process is com-plex, the same complexity is

foisted on the voter. Ona of the referendums refers to three different laws. two decrees and 17 separate articles, making the question an incomprehensible 500 words long. A serious voter would need to consult a barrow-load of statute books.

Not surprisingly, polls suggest a high degree of confusion among the public. People are often unsure which of the two

alternatives (Yes/No) will achieve the result they wish to

Confusion is beigbtened because the same political party may be calling for a vote of Yes on some issues and No on others.

For instance, Mr Berlusconi's rightwing alliance is seeking a No vote to defend the existing ownership structure of commercial television but a Yes for ending certain union privileges. However, the Berlusconi camp's campaign posters rely on a hig No, which refers only to television.

of centre-left parties is behind three referendums intended to limit ownership to one channel, reduce the amount of time occupied hy advertising slots during television films and ensure no one group can control the advertising for more than two channels. If these are accepted, a significant shake-up of television

on the four referendums con-

cerning television. An alliance

ownership will occur, with Mr Berlusconi losing two of his three channels - probably without compensation. The fourth television referen-

dum, promoted by the Radical reformers of Mr Marco Pannella, would allow the privatisation of the Rai state broadcasting network. The aim here is to reduce the

political control of state television by hringing in private capital. If Mr Pannella wins, it will increase the chances of a complete overhaul of public and commercial television.

Other referendums could hring significant changes. The Radicals are behind a move to overturn two-year-old legislation that introduced a second round run-off in local elections in towns of more than 15,000

he run-off system bas proved highly effective in producing stable majorities in local government - but mainly to the benefit of Public awareness is greatest the better organised left. The

One of the referendums refers to three laws, two decrees and 17 articles, making the question 500 words long. A serious voter would

need to consult

a barrow-load

of statute

books.

Radicals are also using this referendum to head off the left from introducing a Frenchstyle second round in national elections.

Mr Pannella is also behind a very political move directed against the trade unions. This seeks to stop the practice whereby employers deduct union contributions antomatically from pay packets. Ending this practice sounds innocent enough; but the Radicals believe that union membership henefits artificially from this passive support

Efforts to reach a legislative solution in advance were blocked by Mr Berlusconi's rightwing alliance. The unions have treated the move as a declaration of war and will not take defeat lightly. Three other referendums on

trade union matters, backed by an odd mix of groups, are designed to hreak the dominance of the three main confederations in labour representation. However, it is doubtful that even with the passing of these referendums the power of the three confederations would be seriously dented.

For the consumer, an important development would be approval of a proposed liberalisation of shopping hours. This would open up Sunday shop-ping even further and end the tightly controlled week-day opening and closing hours. Small shopkeepers fear this

would be the beginning of the end of an entire class of trader, who has managed to survive better in Italy than elsewhere thanks to protective laws. They fear this referendum, coupled with another cutting red tape in planning permission in the retail sector, would also encourage superstores in the suburbs and destroy town centres.

The final referendum is also a quality of life issue. This is an attempt to end the practice whereby the state can impose bouse arrest on Mafia suspects in areas distant from their normal domicile.

The practice has led to the importation of unsavoury characters and organised crime into tranquil neighbourhoods. But anti-Maña police defend the weapon as a useful way of controlling movements of dan-

Berlusconi TV channels win sanctions delay

By Robert Graham in Rome

The imposition of sanctions for political bias on the three television channels of Mr Silvio Berlnsconi's Fininvest empire was postponed yester-day to the relief of all. The matter could now be delayed even until after Sunday's referendums on the future of commercial television.

Sanctions were imposed last week hy the media watch-dog commission following complaints that the Finingest television channels were carrying excessive propaganda for their own cause, defending the con-tinned ownership of three television channels.

Fininvest was given until yesterday to comply with a demand to run 13 free spots campaigning for limiting ownership to one channel. Failure to do so risked anything from a fine to a 15-day black-out.

The decision was postponed yesterday ostensibly because Mr Berlusconi's supporters on Monday filed a challenge in a Milan administrative court to the media watch-dog's ruling. The court is not expected to pronounce until Thursday and then may decide the matter should be treated by a Rome

However, the media commission has been made aware that a black-ont of Mr Berlusconi's television could have a serious influence on public opinion at a crucial juncture. The Berlus-

secret that their refusal to comply with the ruling is intended to raise the stakes and create the impression they are being victimised.

In another delaying move Mr Berlusconi's supporters filed a formal complaint against the media watch-dog for itself showing bias. An action lodged with a Rome court claimed the commission had failed to take heed of complaints that a local television statioo was hroadcasting pro-paganda in favour of Mr Berlusconi having his share of the

commercial TV market cnt. Mr Berlusconi himself has repeated on several occasions that the commission is prejndiced against him and is doing its best to penalise Fininvest. Mr Berlnsconi's channels account for 45 per cent of the national television andience and control more than 85 per cent of commercial advertis-

He and his supporters have so far failed to mention the need to observe a constitutional court decision in Jann-ary. This ruled that the 1990 law reorganising state television and the ownership of private channels was unconstitutional. It went on to order him to divest at least one channel hy 1996. It is still unclear how this decision, which must be obeyed, will be squared if the torious on Sunday.

France faces confrontation over Pacific nuclear tests

By David Buchan in Paris

Greenpeace, the environment lobby group, yesterday announced plans to send its Rainbow Warrior boat to the South Pacific next week to try to deter France from resuming nuclear weapon tests in the

For his part, Mr Charles Millon. France's new defence minister, stressed yesterday that military experts had recommended resumption of nuclear

mer President François Mitterrand three years ago.

The military recommendation, to which Mr Millon referred yesterday, was given to Mr Mitterrand, who ignored it in the interests of setting a moral example to other countries. But President Jacques Chirac is shortly to receive a report from the same group of military experts, and is expected to need no urging to follow

tests, which were halted by for- a few more live tests before land harbour, killing a Portuturning to laboratory methods of keeping its arsenal up to

The stage is set therefore for renewed confrontation between the French government on the one band and environmentalists and Pacific states on the other. This took a significant turn 10 years ago when two French secret service agents blew up Greenpeace's first Rainbow Warrior

guese journalist. The agents were eventually deported back to France where, despite protests from New Zealand and Australia, they rejoined their service and wrote their mem-

Greenpeace said yesterday that Rainbow Warrior II would set sail from Auckland on June 13 with a 20-strong crew of French and other nationalities. Others will join the ship later, including Monsignor Jacques

Gaillot, the radical French Catholic whom the Pope recently removed from his Evreux bishopric.

The organisation gave no details of the planned voyage to near the French underground test site on the remote Mururoa atoll, but pointed out that past protest voyages had been instrumental in persuading France to abandon atmospheric tests in 1972 and in halting underground tests in

According to the Libération newspaper yesterday, French defence experts will propose a final series of less than 10 tests, aimed chiefly at calibrating instruments and methods for future laboratory simulation of nuclear explosions. This would allow Mr Chirac to announce the end-date of the new tests at the same time that be announces their resumption, a move designed to minimise protests from Pacific

countries and to put France in weapon being detonated.

ban treaty emerging in 1996 from negotiations in Geneva. In one of its last acts, the former Balladur government gave the go-ahead to the start of construction next year on a FFrebn (\$1.2bn) "Megajoule" giant laser near Bordeaux. This is part of a joint US-French programme to replicate the power released by a nuclear explosion, thereby sim-

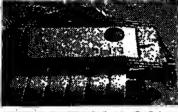
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Kevlar*, Nomex*, Nylon: Helping redefine the cars you drive.

Under the skin of the model changes, which mark progress in the automobile industry, a more fundamental shift in thinking is taking place.

Consumer expectations are causing car makers to redefine their product. In trend-setting markets, emphasis on looks and performance is giving way to



new criteria - comfort, efficiency, reliability and, above all, safety. Designers are being chaffenged to build in more of each at every point in the modal

DuPont's engineering fibres are playing an increasingly important part in this process.

NYLON that saves lives

For example, in airbag technology DuPont has been active in the development of passive restraint systems since the early 1970s. By the year 2000, almost all new cars are expacted to hava them.

State-of-tha-art airbags made from high-tenacity industrial NYLON inflate on impact, then deflate to absorb crash energy - all in a split second. At the

moment of inflation, airbags contain up to 90 litres of gas. Failure is unacceptable: there are no second chances for this component.

The special NYLON yams OuPont has developed meet exacting specifications, but save weight and enable a 20% reduction in pack space - advanlageous to designers, engineers, and ultimately drivers and passengers.

Fail-safe hose technology

OuPont malerials help in other ways. Modem engines perform most efficiently at high temperatures - the higher the berter. So the mechanical and heat stress on componants in and around today's power units is much greater. Engine bays are not only hotter, they're more crowded, firniting access to many components. This increases the reliability stakes: failure is not just inconvenient to drivers, it's time-

consuming and costly to put right. KEVLAR para-aramid and NOMEX meta-aramid fibres give designers the



freedom of more demanding specifications for key components such as hoses.

The industry's ultimate objective is faif-safe products with a quarenteed service life. Manufacturers such as Continantal, Gates, Hutchinson, Merzeler, Phoenix and Sarag are well on the way to achieving this, using KEVLAR and NOMEX to reinforce water, oil, fuel and hydraulic hoses. These set the industry standard for durability and dimensional stability, especially when things get hot: KEVLAR resists remperatures of up 10 160 °C, and NOMEX 200 °C, without functional alteration.

KEVLAR takes the friction

Other component suppliers, such as Goetze, Klinger and Reinz, have adopted KEVLAR as a superior, environmentallyfriendly alternative to aspestos for heavy-duty cylinder head gaskets. Despite higher compression ratios and increased cylinder head temperatures, failure of this key component is rare.

Engine performance gains have been matched by all-round improvements in handling and braking. KEVLAR in brake linings delivers smoother, more efficient stopping power in all road and weather conditions, adding to the safety margin and dover comfort.

Lininos also last longer and cause less wear to discs and drums, so saving



on service costs. The same qualities make KEVLAR a natural choice to remforce durch linings, too.

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OuPons NYLON is widely used to reinforce car and truck tyres, and KEVLAR is used by Michelin, Dunlop and others specifically to strengthen modem, low-profile designs developed for highperformance motoring and racing.



KEVLAR and NYLON add capability to most modern tyre designs

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ZYTEL-KEVLAR is used by Toyota for door chack bars, by the Automotive Products Co. for dutch activation systems, and by other manufacturers

for a wide range of gears, bushes and bearing applications.

All-in-all, OuPont materials are an integral pan of millions of cars rolling off Euro-production lines at Audi, BMW, Fiat, Ford, Lancia, Mercedes-Benz, Opel, Peugeoi, Saab, Toyota, Renault, Volvo and Volkswagen. The list of applications gets longer each year - hardly surprising, given the extensive use of KEVLAR and NOMEX in motor racing and rallying, proving ground for most of the industry's advances in materials technology.

DuPont innovation

The ability of car makers to continue to meet your expectations for increased comfort, efficiency, rehability and safety - and respond to environmental concerns - is critically dependent on new and even better materials. DuPoni is committed to their development: the innovative drive behind our engineening fibre products continues.

OuPont is one of the world's leading industrial companies, with 40 production and development facilities in Europe alone, and over \$1.3 billion spent annually by its R&O and customer service laboratories worldwida. KEVLAR,

NOMEX and NYLON are produced by DuPoni Engineering Fibres which also developed TEFLON' and COROURA'.



These products continue to open up new perspectives in applications ranging from household goods to space vehicles.

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Part of our lives

Japanese coalition parties agree on apology over war

Japan's coalition government averted a break-up last night by reaching a compromise over a proposed national statement to those who suffered at Japan's hands in the second world war.

The compromise, which expresses "deep remorse", was made possible by a concession by the Liberal Democratic party, the largest and most hawkish member of the three party coalition, from its initial refusal to back an apology.

It represents a slightly smaller climbdown by the Social Democratic party of Prime Minister Tomiicbi Murayama, which had proposed an explicit apology to commemorate this year's 50th anniversary of the end of the war. It and the New Harbinger party, smallest member of the coalition, bad threatened to walk out of the government if

the LDP refused to budge, The draft compromise. drawn up by the LDP last night, says: "While giving thought to the many acts of colonial control and aggression that have occurred in modern world history, we recognise the acts of this kind carried out by



Murayama: slightly smaller climbdown hy his party

suffering that we caused the people of other countries, especially those of Asia, and we express our feeling of deep

This steers a middle line between the right wing of the LDP, which believes that Japan's war in Asia was to push out western colonial powers, and the pro-apologists. This "captures the spirit... of what we have heen aiming for." Mr Wataru Kubo, SDP secretary-general, said.

The compromise attracted instant opposition from members of the LDP right, such as Mr Masakuni Murakami, a for-

mer labour minister, inviting the possibility that the LDP might split in the forthcoming

The draft is to be put to parliament before the end of the present session on June 18. though Mr Murayama is hop-ing to get it through in time to take to the summit of the Group of Seven industrialised nations in Canada on June 15. Despite rightwing discon-

tent, political observers said last night they expected it to clear parliament, if only because the LDP is unprepared to see the government break up. Mr Murayama, had demanded the LDP leadership's backing for an apology as a condition for joining the coalition with his former politi-

cal enemies last June. Last night's accord concludes several months of bitter debate, the biggest threat to the coalition's survival to date. The breakdown of voting will give a clear sign of how divided Japanese politicians are over the country's war record, a sensitive point in its relations with the rest of

Because of the war compromise, the unstable coalition can now be expected to stay July, though Mr Murayama might step down if the SDP fares even worse than expected

in the poll. John Burton adds from Seoul: Japan last night expressed regret over the fire-bombing of its cultural centre in Seoul by Korean students. The students were protesting at a remark at the weekend by Mr Michio Watanabe, the former Japanese foreign minister, that Korea had willingly accepted Japa-nese colonial rule in 1910.

Koreans regard the Japanese takeover of their country. which lasted for 35 years, as forced annexation. The South Korean foreign ministry issued a strong protest and Mr Watanabe withdrew his statement and apologised on Monday.

About 60 Korean students briefly set the Japanese cultural centre on fire in a dawn attack yesterday.

North Korea has kept silent on Mr Watanabe's remarks in sharp contrast to its previous condemnations of Japanese colonial rule. The present low-key approach by Pyongyang apparently reflects the instrumental role Mr Watanabe has been playing in proDissident trade union leaders arrested

S Korean police raid temple and cathedral

Police yesterday conducted an unprecedented raid on Seoul's main Buddhist temple and Catholic cathedral to arrest 13 trade union leaders of Korea Telecom, the state-run telecommunications agency.

The dawn arrests threaten to exacerbate labour tensions, with the main opposition Democratic party, religious leaders and dissident union activists condemning tha government's tough action

It was the first time that the police had entered Myongdong cathedral and Chogye-sa temple to arrest political dissidents, breaking a tradition that had been respected even by Korea's former military rulers.

Officials said the action was necessary to prevent labour unrest from spreading among other public services, including the Seoul underground system. The government's crackdown on lahour activity is viewed as part of an effort to

event the formation of a new dissident labour group, the Democratic Trade Union Council, which is challenging the officially sanctioned Korea Federation of Trade Umons.

The leaders of Korea Telecom union, the nation's largest, were alleged by officials to have links with the new labour

The government accused the Korea Telecom union leaders of illegal activity after company workers staged a demon-stration last month to protest at privatisation of the agency, deregulation of telecommunications services and a proposal to keep wage growth below 3 per cent this year.

custing of 64 union officials from the company caused further disputions with Korea Telecom workers conducting work to rule" activities.

Threatened with arrest, the 13 union officials fled to the religious centres two weeks ago to seek sanctuary.

Korea Telecom offices to pre vent the possible seizure of exchanges by protesting work

Officials of the Democratic Trade Union Council threatened a "general labour struggle" next week, beginning with a ban on overtime work for its member unions, and anti-gov ernment rallies.

The Democratic party claimed the arrests were meant to win support among conservative voters in the run-up to local elections later this

month. The ruling Democratic Lib eral party is confronting a strong challenge from a newly formed conservative party, the United Liberal Democrats.

A continued crackdown on labour activity could jeopardise South Korea's plans to seek a three-year term on the governing hody of the Interna-tional Labour Organisation

beginning in 1996.

East Asia. A senior official responsible for foreign financial institutions at the People's Bank of he expected formalities to be completed within the next few

Way is cleared

for five

open in

Peel in Beijing and John

China has cleared the way for five foreign banks to establish

branches in Beijing, in a long-awaited decision which heralds

the award of prize banking

Tokyo. Citibank of the US.

rance's Banque Indosuez, and

Hongkong and Shanghai Bank

ing Corporation, which has a

UK-domiciled holding com-

pany. The fifth is a Hong Kong

institution, possibly Bank of

The banks include Bank of

banks to

Foreign banks have long een pressing the authorities to allow them to establish branches in the capital, but Beijing has been slow to agree. This reflects the centre's cautious approach to financial reform. China has previously opened 13 cities to foreign ank branches, with another 10 recently approved, including Seijing. At the end of 1994, 118 foreign financial institutions.

China has previously opened 13 cities to foreign bank branches

had established branches in China, with another five sanctioned this year.

The People's Bank official said the successful applicants for Beiling branch licences had been selected because they were the largest contributors in terms of loans, and in terms

of trade financing". Citibank recently moved its Shanghai. Hongkong Bank is seeking to return to reclaim its former premises on the Shanghai waterfront, and Banque Indosuez has been among the more aggressive of the European banks in its quest for China business.

The authorities are expected to approve a second batch of foreign bank branches in Beijing soon. This second group would be almost certain to include at least one Cerman

bank, possibly Dresdner. Meanwhile, in Seattle, a senior Chinese banker has said China will try to improve conditions for foreign investment, and will also move to lift the ban on foreign banks conducting business in domestic cur-

ear

Mr Wang Xuabing, chief executive of the Bank of China, said at a meeting of the International Monetary Conference that the opening of the market to allow foreign banks to trade domestic currency depended on these institutions developing appropriate management reporting methods.

He was unable to provide a precise timetable for such a step. China, he said, would have to develop wholesale money markets to allow both domestic and foreign banks to be able to gather deposits more easily, and this would be started before the year's end. China intended to:

• Implement reforms of cur-

rency exchange markats to allow foreign-funded companies to trade. This would assist a gradual move to convertibility of the Chinese currency; Allow specialised banks such as Bank of China to convert gradually into state-owned commercial banks. This would lead to such banks strengthening their risk management

 Segregate the operation of the life and property insurance businesses, and allow competition in the insurance industry through the gradual introduction of foreign companies, Restructure the current financial futures markets to

mechanisms and improve their

ensure they can operate "under strict regulations and only in selected trial cities". China would try to provide foreign investors with new legal protection, and supple ment direct investment and foreign borrowing with other

methods of raising capital in

foreign markets. Beijing would take more steps to ensure further foreign investment. To take positive measures to attract foreign investment and persist in its rational use are still the fundamental policies of the Chinese

Surplus falls for second month

By Gerard Baker in Tokyo

Another surge in imports and an exodus of yen-wielding Japanese on foreign holidays produced the second consecutive steep monthly fall in Japan's current account surplus in April, the finance ministry said

The surplus on the current account fell 18.5 per cent from a year earlier to \$11.35bn (£7bn), according to a preliminary estimate.

Imports jumped 39.7 per cent to \$26.09bn, but continued strong growth in Japan's overseas markets and the effect of the high yen on export values saw exports rise 20.7 per cent

The combination pushed the trade surplus down for the first money they spent grew 14.1 per cent to \$12.47bn

Imports of crude oil, cars and office equipment all rose strongly, as the strong currency reduced prices, leading to increased domestic demand for foreign goods.

rent account surplus fell even more sharply, by 30 per cent from a year earlier to \$8.24bn. The country's deficit in services grew 3.6 per cent to

On the travel account, the deficit expanded by 25 per cent to \$2.47bn as Japanese tourists, buoyed by the high yen, went overseas in greater numbers

than ever before. The number of travellers overseas in April rose 5.7 per cent from a year earlier to over lm; the average amount of

gap has been at the root of the yen's sbarp rise against the dollar in the past year, as investors were concerned that the stubbornly high surplus was producing a structural The seasonally-adjusted curgiut of dollars in world finan-

> The yen's rise is itself now starting to produce a decline in the surplus. In yen terms, the fall was

even steeper, with the current account surplus dropping 34.1 per cent, the fifth straight month of decline, to Y949.2bn. As the yen rises, the value of Japanese exports increases. producing an initial rise in the

value of exports. This so-called J-curve effect is likely to persist a while and could produce another upward of the yen's rise to a level of Y80 to the dollar works its way through the balance of pay-

The long-term capital account showed an outflow of \$7.02bn in April, compared with an outflow of \$17.69bn a year earlier and an inflow of \$8.85bn in March.

The figure for March was inflated by the repatriation of assets by companies before the end of their financial year, and the bulk of the capital account deficit in April was in the form of Japanese investment in yendenominated bonds overseas.

Little sign exists of a return to foreign-currency denominated investment by cautious Japanese investors, a factor that may still inhibit any sharp fall in the value of the Japa-The large current account next few months, as the impact ahead.



to put up lighthouses on Spratlys

The Philippines plans to build eight lighthouses in the dis-puted South China Sea. one on an unclaimed shoal west of the northern Philippine province of Ilocos Norte, the head of the Philippine Navy said yesterday, Kyodo reports from Manila.

Aside from seven lighthouses to be huilt in the Spratly islands, Manila also plans to put up a lighthouse on Scarborough Shoal, which is not being claimed by any country, Vice-Admiral Pio Carranza said

Earlier. China stated its claim to the whole Sonth China Sea. Aside from China, the other claimants to all or part of the Spratlys are Brunei, Vietnam, the Philippines, Taiwan and Malaysia.

Admi Carranza said Manila had drawn up a sbort list of private companies to be com-missioned to build the lighthouses in the Spratlys; the lighthouse on Scarborough Shoal would be built by the Philippine Navy.
A "secret" memorandum

approved by President Fidel Ramos last year called for lighthouses in the Spratlys to strengthen Manila's claims to the islets and shoals, most of them submerged, and to rede-fine the country's base lines in accordance with the UN Convention on the Law of the Sea. in effect from November 1994.

Security gaps at Manila's international airport are being tightened after the US said it would cancel flights from the Philippines over the issne, Reuter reports. Mr Guillermo Cunanan, airport general manager, said yesterday that concerns over a militant homb attack raised by the US Fed-eral Aviation Anthority were being addressed.

Mr Federico Peña, US transportation secretary, wrote to Mr Jesus Garcia, bis Philippine counterpart, saying the Philippines would lose its US landing rights unless security was tightened at Manila air port. The FAA was concerned about the airport's ability to detect liquid explosive used in an attack by suspected Moslem extremists on a Philippine Airlines aircraft last December.

Japanese cult leader charged

Mr Shoko Asahara, leader of Aum Shinri Kyo, the Japanese doomsday cult, was indicted yesterday with six of his followers on charges of murder and attempted murder for the Tokyo subway nerve gas attack in March. Prosecutors accused him of masterminding the attack; the six others were accused of making the sarin nerve gas and releasing it in an attack which claimed 12 lives and injured 5,500 people.

Mr Asahara, arrested on May 16, has so far refused to co-operate with police investigations, but other members said to have been involved in the production of sarin have started to confess to the involvement of the sect. Nine other Aum members were also indicted on charges of

allegedly preparing the subway attack, including procurement of sarin ingredients. In an effort to calm fears of revenge attacks, Mr Kozo Igarashi, chief cabinet secretary, yesterday confirmed the sect beld no more sarin. Police have also linked Aum to a gas attack last June in Matsumoto, central Japan, in which seven people were killed and over 100 others hurt. The police are also expected to charge Mr Asahara and other Aum members over the kidnapping of Mr Kiyoshi Kariya, hrother of an ex-cult member, who disappeared just before the subway Emiko Terazono, Tokyo

N Korea-US talks 'quickening' The pace of US-North Korea nuclear talks has quickened and

"things are coming to a head," a US official said in Washington yesterday. North Korea yesterday recalled two of its seven negotiators from the talks, which have been taking place in Kuala Lumpur since May 20. Although observers took this as a sign of displeasure, the US official noted five members of the delegation remained, and a Pyongyang official was reported as saying talks would continue today.

The Malaysia meeting is to discuss whether Pyongyang will

accept two light water reactors from South Korea in return for shutting down its suspected nuclear weapons programme. Negotiators have hinted that North Korea would allow South Korea to supply the \$4bn reactors if an extra \$1bn is provided to build an electricity grid and related facilities. John Burton. Seoul and Reuter, Washington

People's convention' urged

Mr John Howard, leader of Australia's Liberal party, last night committed the coalition opposition to a "people a convention" to examine the country's constitution in 1997. He promised parliamentary reforms and an audit commission to examine federal government outlays should the coalition win power at the next election. His speech, made in Canberra last might. was seen as the first of six pre-election set-pieces in which the coalition's future strategy will be outlined. A federal election is due by May 1996, but some observers think clement economic conditions will encourage the Labor government to go to the polls later this year.

Taiwan may ease money policy

Taiwan's central bank may relax monetary policy to buoy the economy in the wake of lower inflation figures released yesterday. The consumer price index rose 3.31 per cent year-on-year in May, against a rise of 4.44 per cent in April. For the first five months of the year prices were up 4.06 per cent from a year earlier, prompting statisticians to predict inflation for the full year would fall safely within the 3.94 per cent target. Mr Sheu Yuan-dong, governor of the central bank. said the bank would loosen credit to meet the cash needs of companies. Analysts did not rule out a cut in the bank'a rediscount rate, which was lifted 30 basis points to 5.8 per cent last February. Laura Tyson, Taipei

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Palmer House Hilton). 6. The Rocky Mountains near Denver (staving at Denver Hilton South). 7. Hawaiian Islamis (staying at the Hilton Uswaiian Village).

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Rubin calls for closer IMF surveillance | Mandela backs

By Jurek Martin in Washington

The international financial system needs better emergency fundraising mechanisms and closer surveillance by the International Monetary Fund to handle crises on the scale racently encountared by Mexico, according to Mr Robert

Rubin, US Treasury secretary. In a Washington speech yesterday laying ont the US agenda for this month's G7 summit in Canada, Mr Rubin asserted the US could not abandon its leading role in

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There is a new isolationism afoot [in the US] and it must be

aggressively countered." He identified four areas for action "to deal with the problems that may arise from the vast increased in the speed and size of the international financial markets."

• Greater and more timely disclosure of financial data to the markets: that was "one of the primary lessons of Mexico's difficulties." The IMF "must develop a greater capacity for surveillance, so that it, too, can

global economic policy-making. play a powerful preventative role"

 The international economy naeds new mechanisms "to rapidly mobilise relatively large amounts of conditional financial assistance". Since the US, "cannot be the lender of last resort to the world," the multinational institutions needed extra capacity.

• There should be "cautious exploration of orderly work-out mechanisms" to handle inter-national debt crises. "We no longer have the luxury of hringing in a few major credi-

"hroader fange" of countries instability".

be involved. The financial markets themselves, and their evolving instruments, need closer supervision, with national regulators working more closely with each other. "We cannot elimi-nate this type of systemic risk, hut we can better monitor and

Mexico was a classic case study of how "poor policies and markets that lack depth can, in very short order,

said. suggesting that a threaten the spread of financial

Mr Rubin also emphasised the importance of continuad US support for the development institutions. He described the International Development Association, the World Bank's soft loan arm, and the IMF's Enhanced Structural Adjustment Facility as "among our most important foreign policy tools for integrating

world's poorest nations into the global economy". Full funding for both, how-

tors to find a solution," he destroy a nation's finances and ever, is unlikely, given the said. suggesting that a threaten the spread of financial mood of the Republican-controlled Congress. Mr Rubin argued that it was "impera-tive" that the legislature com-ply with the administration's request on the grounds that we cannot isolate ourselves from a world in political and

economic transition". Mr Rubin did not leave the impression that the summit would provide instantly agreed answers to all the problems. Halifax, ba said, should be seen as a way station in an evolu-

acutely.

By Roger Matthews in Johannesburg

More than 50,000 protesting trade unionists received the personal blessing of President Nelson Mandala yesterday when they marched through central Johannesburg in the biggest display of political strength since last year's gen-

unions' labour

law campaign

allied to the ANC, and played a

key role in the alection victory,

militancy would inevitably cre-

ate some cooling of relation-ships with a cabinet committed

to fiscal discipline, wage

restraint, and the fight against

However, ANC ministers have said privately that they

itancy at the grassroots, and

Mr Mandela's intervention ves-

terday may have been in recog-

The president's involvement will also intensify pressure on

employers during negotiations with labour and government

representatives at the National

Economic Development and Labour Council (Nedlac). The

three sides are seeking to

reach a common position on a

draft labour relations bill

which would then be adopted

by the cabinet and presented to

The union protest campaign

has been sparked by the

employers' lack of enthusiasm for the introduction of central-

ised bargaining, by differences

over the right to strike and to

impose lockouts, and over the

role of workplace forums

which would offer workers greater involvement in the

day last year, the highest

national rate in the world.

parliament for approval.

inflation.

nition of that.

was widely expected that its

The demonstration marked the start of a two-week cam-paign by South Africa's three main trade union federations to put pressure on employers over new labour relations legislation, and to oppose any gov-ernment move towards the privatisation of state assets.

flower growers, bolstered by higher profit margins, suffered Mr Mandela's surprise appearance at the demonstra-When the shilling was weak tion was greeted with a mar of we gave five wage increases to approval from the vast crowd. our employees because they Standing on the back of a were struggling," said Mr George Roy, financial director truck, he said that the right to demonstrate and to strike had been one of the main weapons used by the African National Congress in its long struggle Marks and Spencer. "When the against apartheid. rate goes down you can't just take that away. Across the

your demonstration."

see an even weaker shilling, trading at 60 to the dollar, but the overwhelming message from the export industry, Mr Micah Cheserem, central bank governor, acknowledged, is

that currency stability is more important than the rate. Over the last two years the shilling has soared from a high of 82 to a low of 35 to the dollar. The risk of a weaker shilling is, of course, inflation, as the

board our cost of production rose 100 per cent."

Many exporters would like to

higher price of imports gets passed on to consumers. But Mr Cheserem insisted his target of 7.2 per cent inflation for 1995 remained feasible and predicted petrol companies which recently angered the government hy raising prices would "When the shilling was

strong importers did not lower their prices accordingly. People were overcharging and enjoyed bumper profit margins. The importers knew they were living on borrowed time.'

"You are entitled to use those rights, and the ANC fully supports you," he said. "We have the right to sit down and negotiate with employers. I am here to wish you luck. I bless

Although Cosatu is closely

Roger Matthews. The court

S Africa abolishes

the death penalty South Africa's powerful judges had been widely expecconstitutional court yesterday ted, given their known views on capital punishment. But it abolished the death penalty, will cause controversy in a ruling that capital punishment was incompatible with the country where an average of 50 right to life enshrined in the people were murdered every country's bill of rights, writes

president, Judge Arthur Chas-kalson, said: "Everyone, Opinion polls show a major-ity of the public favour keeping including the most abominable the death penalty. The cabinet has been divided; the African of human heings, has the right National Congress favours aboto life and capital punishment is therefore unconstitutional." lition while the National party, The consensus decision by wants the death penalty the nine men and two women

competitors'

Banks may be forced to sell products such as mortgages and credit cards more cheaply over electronic networks than through their branches to avoid being undercut by new competitors, Lord Younger, chairman of Royal Bank of Scotland, told an international banking conference in Seattle yesterday. Technological change threatened banks' ability to retain dominance of their core businesses.

He told the International Monetary Conference that new technologies such as telephone and electronic networks would allow companies which were not banks to sell products such as credit cards and loans more

Banks could "find it hard to respond to this threat because of their substantial investment in branches, infrastructure and

Lord Younger, whose bank owns the UK telephone insurance company Direct Line, said banks might have to charge less for products sold through new channels of delivery, and brand them separately.

New channels such as automatic teller machines, telephones, screen phones and interactive video would give customers quicker_access to information and produce the illusion of personal service".



Younger: 'technological threat'

accurate information about each customer, they would offer a more personalised and consistent service than was possible in traditional bank

However, he said most customers were not ready to condnct their business over the internet or through interactive video, and evolution towards the bank of the future would depend on customer demand.

Although telephone delivery of services was already taking off, Lord Younger said other developments would take time "and may require a new generation of young, computer-liter-ate customers" to succeed.

Royal Bank allowed Direct Line to compete with its branch network in selling products. "This means that we may lose some business, but Because technology would wa would rather lose it to our allow staff to have much more own subsidiary," he said.

Banks 'face new Widespread applause greets the fall of the Kenya shilling

Where will it stop?" was the jittery headline in a local magazine, reflecting the panic many felt as Kenya's currency Went into a beadlong dive, losing 23 per cent of its value in just two months. But the dismay was not universal. Flowar growers, coffee sellera, tour companies, restaurants and hotels are all revelling in the shilling's dramatic slide and hoping for a further fall. The sudden depreciation,

which has brought the shilling down to between 50 and 55 against the US dollar, puts an end to an anomalous sevenmonth period in which the currency was trading at between 42 and 45 to the dollar. The over-strong shilling was largely the result of a flood of speculative foreign exchange into Kenya that followed the lifting of exchange controls in 1992, chasing high yields on

Treasury bills. The government tolerated this since it made it easier to pay off foreign debt. But the effect was catastrophic for the country's main earners of foreign exchange: a tourism industry that brings in \$350m a year, the coffee and tea sector and Kenya's most recent success story - the flower, fresh fruit and vegetable sector.

The latest depreciation is the result of a combination of factors: the dollar's strengthening on international markets,

low tourism season and the depressive effect of press reports that Kenya's bilateral donors are unhappy with the government's record on democratisation and could cut aid. Speculation exacerbated the movement, with importers

ing into the country during the

rushing to pay their foreign currency bills before the shilling lost more ground and exporters holding on to their proceeds in the hope the shilling would fall further.
With the strong shilling. Africa's leading tourist destination was transformed from a

cheap to an expensive holiday. "We used to stand head and shoulders above the rest." said Njeru Kirira, chief executive at Kenya's Association for Hotel Keepers and Caterers. "Suddealy we were losing our competitive edge against South Africa, Florida, south-east

If the shilling had remained strong, Mr Kirira said, hotels would have been forced to close as many of the 850,000 visitors a year looked elsewhere. As it is, many establishments are just ticking over, with occupancy rates of only 40 per cent, and hundreds of employees have been laid off. The strong shilling also whit-

tled away at the profits of coffee and tea producers, Kenya's main exporters. Mr Jimnah Mbaru, chairman of Nairohi's stock exchange, attributes profit falls of more than 50 per reduced foreign exchange com- cent at blue-chip companies would be more appropriate," said Mr Mbaru. "But 55 to the

Sasini Tea and Coffee and

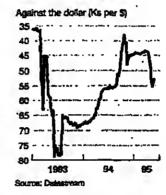
Limuru Tea in 1984 directly to

the over-strong shilling.

Kenyan Shilling

dollar now should reassure the agricultural sector for Homegrown, largest suppliers of flowers to Britain's For the fruit vegetable and

"Eventually a 60 shilling rate



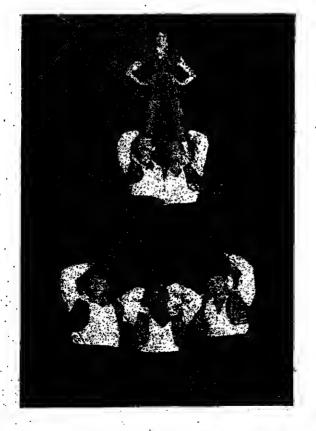
horticulture sector, the effect was a sharp hrake on what had heen a rapidly-expanding industry in which enterprises mushroomed to more than 300 from 100 in just a few years.

"The period of rapid growth is past," said Mr Paul Guenette, who works for the USfunded Kenya Export Development Support project. "Compa-nies are now going to have to become more efficient or

Vegetable growers, which have the smallest profit mar-

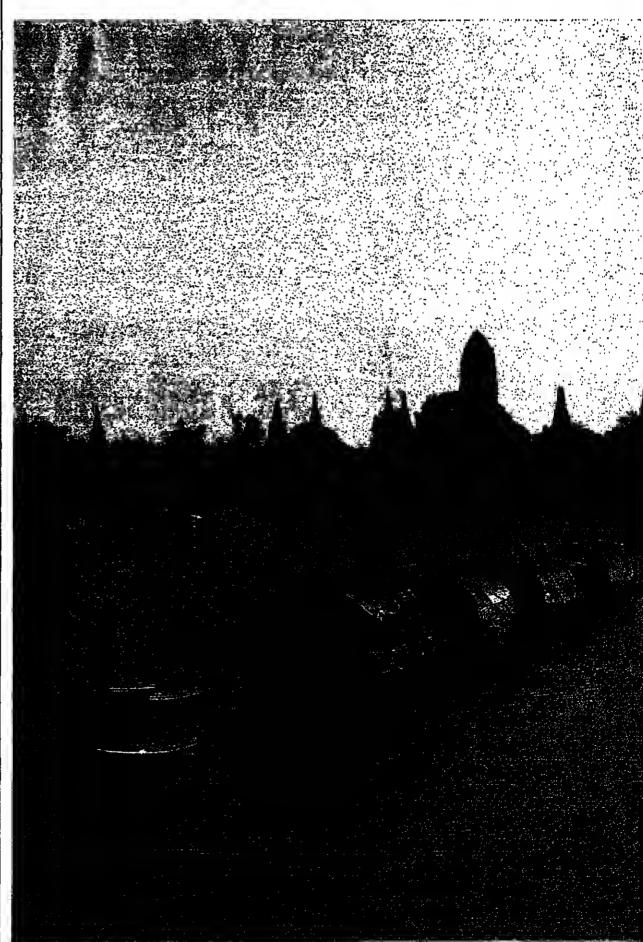
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NEWS: THE AMERICAS

Endangered species pulls off political coup in California

Professional politicians are supposedly an endangered species in the US. But on their turf, and on their terms, they can still run rings around the new breed of amateur "citizen-legislators" who arrive breathing fire and brimstone and suddenly find themselves elegantly

The Republican Party in California, for example, is now feeling a bit wet, and very angry, courtesy of Mr Willie Brown, for 15 years Democratic Speaker of the state assembly and as skilful a

on Monday in Sacramento, be pulled off his ultimate coup. The assembly duly elected a Republican to succeed him, but the new Speaker, Mrs Doris Allen, was not the party candidate but Mr Brown's. In fact she was elected with every Democrat vnting for ber and every Republican, except herself, against

She then thanked ber predecessor by naming him to a new post as Speaker Emeritus. She promised bim a leading role in this summer's budget negotiations with Republican Governor Pete Wilson and agreed under a "power sharing"

cratic assemblymen could keep their committee assignments.

The story takes some telling. The Republicans appeared to have scored a narrow one-seat majority in last November's election, threatening Mr Brown's tenure. But be located and wooed a dissident Republican backbencher who broke with the party and kept the Speaker in

However, the backbencher was recalled by furious constituents and voted out of office, again setting the stage for Mr Brown's removal. He appeared to

acknowledge the inevitable by amouncing be would run for mayor of San Francisco. In any event, the state term limit law obliges him to leave the assembly next year, though he had men-tioned moving over to the California sen-

Having laid down his smokescreen, Mr Brown went to work on Mrs Allen. She is 59, was first elected in 1982 from conservative Orange County but was known for an independent streak and a willingness to co-operate with Mr Brown's Democratic majority. She sponsored bills requiring motor cyclists to wear crash belmets and banning offshore gill net fishing, but was otherwise obscure.

But Mr Brown knew that she was furious with Mr Jim Brulte, the Republican floor leader in the assembly, because he had supported a Republican rival when she fought, and lost, a primary for a vacant seat in the Senate earlier this

Mr Brown gave her revenge on Monday. She beat Mr Bruite by 40 votes to 38 (there are still two vacancies in tha 80 member assembly) to become California's first woman Speaker. Angry Republicans

led, but that might take some political

Mr Bruite groused that "the least cape ble Republican as Speaker will be better than Willie Brown on his best day. That was a mistake, for Mr Brown had not quite finished.

Since he is the first Speaker Emeri no office had been assigned to him. But he has announced that he expects to move one finor upstairs from the Speaker's quarters - into the space now occupied by

Argentina holds up wages to hit IMF targets

By David Pilling in Buenos

The June wages of 300,000 Argentine public sector workers will not be paid until July in an effort to reach fiscal targets agreed with the International Monetary Fund.

Hoping to compensate for disappointing tax receipts the move is designed to meet IMF targets for the second quarter by pushing a significant proportion of the state's financial obligations for this period into the third quar-

The wage payment delay. described by one commentator as a "cosmetic exercise," will be complemented by rescheduling public sector with suppliers and by bringing forward to June the payment of a wealth

The combined exercise would postpone outgoings and advance tax receipts, boosting national accounts for the quarter by up to \$1.3bn.

Mr Domingo Cavallo. the economy minister, said sucb measures were necessary. "even though we don't like them." because tax receipts were likely to fall short by an estimated \$600m in the second

Mr Cavallo said he expected tax collection to pick up strongly in the second half of

the year as liquidity returned

faces protests

He has rejected the forecasts of many economists that

growth will slip to zero or even

negative levels this year,

sticking to his estimate of 3 per

in the payments chain.

may not immediately feed into

funds will not prevent the

economy from remaining

depressed for at least until the

end of the year," the Alpha

economic consultancy said in a

per cent.

"The partial entrance of

In the previous four years,

By Leslia Crawford in Mexico City

Mexico

Mexico's opposition National Action party (PAN) is mobili-sing its supporters for civil disobedience and nationwide demonstrations this week to protest against the victory of the ruling Institutional Revolutionary party (PRI) in elections for the governorship of Yuca-

economists had consistently underestimated the strength of The PAN is contesting the the Argentine economy. Mr results of the May 28 elections Cavallo said, However, even which pronounced Mr Victor President Carlos Menem bas Cervera Pacheco, the PRI canadmitted that the next few didate, the new governor of months are going to be "pretty Yucatán by a margin of only 22,463 votes over Mr Luis Cor-Many economists doubt the rea Mena of the PAN. ability of the economy to pick up steam in the second half

The PAN, Mexico's biggest opposition party, has refused to concede defeat. It is chalgiven the severe credit cruncb and the consequent breakdown lenging the results before electoral courts and seeking annul-Even though part of the ment of the count in 325 \$8.5bn that fled the system polling stations, where it after Mexico's devaluation is alleges irregularities took beginning to trickle back, this

> The fiercely contested election in the south-eastern state of Yucatan has led to a marked deterioration in relations between President Ernesto Zedillo's government and the PAN, which previously acted as the unofficial junior partner in government.

Alpha, which estimates that The call for civil disobedithe economy grew at 2.5 per cent in the first quarter, says ence is unusual for the PAN. whose members are mostly Argentina will record negative conservative, Catholic and growth of 0.5 per cent in the from the urban middle classes. year as a whole. Last year, the and signals the beginning of a Argentine economy grew by 7.1 confrontational strategy from the party.

Hopes for Haiti poll peace recede An election success is crucial to the establishment of democracy, says Canute James aiti's electoral officials are scrambling to be ready for legislative elections scheduled for June 25 amid indications that the vote, considered crucial to the country's political rehabilitation,

could be damaged by adminis-trative problems and violence. These will be the first elections since the return of Mr Jean-Bartrand Aristide from three years in exile after being overthrown by the military in 1991. They are to fill 18 seats in the senate and the 83 in the lower house, and to elect more than 100 mayors and 500 town councillors. The exercise is seen by the Haitian government, and by the US and other countries which backed Mr Aristide's return, as important to the establishment of democracy in the Caribbean state.

The provisional electoral council, hoping to have the ballots printed in the US and returned to Haiti to be distributed in time for the vote, bas dismissed suggestions from the United Nations that it does not have enough time. "The electoral council is holding elections, not the United Nations," said Mr Anselme Remy, the council's president.

He was speaking a few bours after more questions about the integrity of the elections were raised by the theft of almost Im voter registration cards. The aim of the thieves is to prevent people who want to vote from doing so," Mr Remy said. The cards could then be used by the thieves to put an MP or Senator of their choice

The prospect of trouble-free



Jean-Bertrand Aristide: needs strong showing to support his commitment to reforms

elections has been made more unlikely by increasing violence in Haiti, and by what government and security officials say are signs that factions loyal to the former military government will use thuggery to try to disrupt the campaign.

The populist parties which make up the Lavalas (Flash Flood) movement which swept Mr Aristide to power in 1990 is expected to do best. It is most organised while other parties are generally weak.

Mr Aristide will benefit from credible elections to support his public commitment to political and economic reforms. This could appease some foreign business and will prepare the ground for the presidential elections in December, when Mr Aristide's successor will be

stand for consecutive terms. President Bill Clinton will also benefit from trouble-free voting in Haiti. The US government, and the UN, have provided money to organise the

chosen. The president cannot

The US president's interest goes beyond this, bowever. He ignored the objections of many even Democrats - to mount the US military intervention in Haiti which forced the country's military rulers into exile and paved the way for Mr Aristide's return. Chaos and confusion in the first real test of and embolden his detractors. The elections will also be a test for the UN multinational force in Haiti which is responsible for law and order, and for Haiti's fledgling constabulary. There have been outbreaks of sporadic and often aimless shooting, said to have been carried out by disgruntled anti-

government factions. Trouble-free elections could also ease the growing disap-pointment among Haitians who feel they should already have started to see the economic changes promised when Mr Aristide was reinstated. The president intends to use the weeks after the voting to popular democracy in Haiti make some changes to ease would undo Mr Clinton's work their impatience. Extensive

cabinet changes are expected Foreign donors are putting up more than \$700m to jump start the economy, the weakest in the Americas. The government plans to privatise nine big state enterprises, and is implementing broad tariff

Mr Aristide's government is offering special incentives to foreign investors. They are aimed mainly at US compa-nies, several of which were involved in Haiti's light industry before the military overthrew the president, Although some have returned, there is uncertainty among foreign stability of the country.

rien E

to Israel

The poor state of Haiti's physical infrastructure and utilities is also not encourage ing new businesses Most investors are willing to move after tha legislative elections, tive and political calm, while others say they will await the outcome of the presidential

A rise in violent street crime not only frightens Haitians and makes the government appear belpless, but will also deter foreign investment.

The US government has offered to train more Haitlan policemen in the US to curb a rise in vinlent crime, but Haiti will continue to need outside help to maintain law and order. The commander of the UN forces in Haitl has snggested their mandate should be extended beyond the deadline of next February when the new president is

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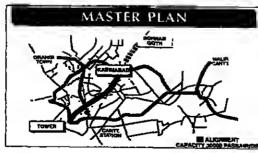
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NEWS: WORLD TRADE

EU-Japan accord over cars access

By Michiyo Nakamoto in Tokyo

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The EU and Japan yesterday reached agreement on measures to improve access to the Japanese markets for cars and car parts.

The agreemants, reached after two days of negotiations in Tokyo marked a "substantial breakthrough" m the area of vehicle standards harmonisation, said Sir Leon Brittan, vice-president of the European Commission

The EU-Japan accorda coincide with a trade dispute between the US and Japan over access to Japanese markets for US cars and car parts. The US has threatened to impose punitive tariffs of 100 per cent on Japanese_luxury car imports unless Japanese carmakers agree to increase purchases of US-made car parts. In response to what it sees as an unjustified unilateral measure. Japan has taken the case to the World Trade Organisation.

In its negotiations with the EU. Tokyo agreed to six specific measures long requested by the EU:

 Javan will become a signatory to the United Nations Economic Commission for Europe (UN-ECE) 1958 Agreement, which calls for the mutual recognition of vehicle regulations.

The UN-ECE Agreement covers 90 vehicle testing and certification standards to which member countries voluntarily adhere. Although Japan has yet to decide which specific standards it will "we have had. indications that Japan will adhere to a significant number of the regulations," according to Mr Richard Wright who is in charge of vehicles at the

Japan's participation will help to harmonise standards between the EU and Japan and facilitate access to Japanese markets for European car and car parts makers. Japanese participation was also important since it set the pace for vehicle standards in the Asian region Mr Wright

 Japan agreed to provide European carmakers, with vehicle inspectors who issne certification to imported cars. One European carmaker had to send 37 cars by air freight to Japan at a cost of Y50m (£374,000) in order to receive. quick certification. Under the agreement reached yesterday, Japan will provide 40-day advance notice of inspectors' visits to Europe to enable car. gains.

makers to arrange inspections. Japan will introduce a preferential handling procedure for trucks which will enable European makers to take advantage of simplified testing and certification procedures for up to 2,000 trucks imported into

• Japan will accept the principle of component type approvals. Currently, parts makers must receive approval for individual parts each time they want to sell them to a manufacturer.

 European carmakers will be able to obtain certification of their cars made in the US for the Japanese market.

Japan has agreed to hold talks with the US on their car trade dispute on June 12 and 13 in Geneva, Minister of International Trade and **Industry Ryutaro Hashimoto**

He also said Japan would welcome the participation of the European Union in the talks which, he said, should be beld under the auspices of the World Trade Organisation.

 Japan will accept European durability standards for emission regulations.

Negotiations between the two sides will continue to resolve other ontstanding

European carmakers welcomed the news fromthat Japan had agreed to change some aspects of the inspection of imported cars, saying it would help cut the costs for exporters.

An official at the Association of European Automobila Constructors said: "ACEA welcomes the progress in technical discussions."

 Sales of imported vehicles th Japan in May rose 21 per cent from a year earlier to 26,108, marking the 19th successive year-on-year gain, the Japan Automobile Importers Association (JAIA) said. May sales of vehicles made by the overseas units of Japanese makers totalled 7,154, np 17.9 per cent on the year.

May's imported vehicle sales were a record for the month, record of 21,579 in May 1994. JAIA said.

On June 1, the Japan Automobile Dealers Associatioo (JADA) announced that Japan's overall domestic vehicle sales had risen 3.4 per cent from a year earlier to 335,728 units in May, marking the 12th consecutive month of

VW leads drive into Israel by German ventures

Volkswagen of Germany and Israel's Dead Sea Works yeaterday signed a memorandum of understanding to establish a joint venture worth up to \$600m to produce and sell magnesium.
The venture will construct a

magnesium production plant near the Dead Sea. The first phase, costing \$325m, will have a capacity of 27,500 tonnes per year and production is planned to start in the second half of 1996. The second phase will double the capacity. DSW will hold 65 per cent and Volkswagen 85 per cent of the venture. Volkswagen will use much of the magnesium in the development of lightweight environmentally friendly

The deal is the first major Israeli-European joint venture and was hailed by Chancellor Helmut Kohl of Germany and Israeli prime minister Yitzhak Rabin as the start of investment and trade benefits of unfolding Middle East peace. Mr Kohl, who is visiting the Middle East accompanied by a German business delegation, said yesterday's deal would be a "role model" for German and Israeli companies to form joint ventures to help cement Middle East peace.

The chancellor also promised to back Israel's demands for a conclusion to negotiations on a new Israeli-European Union - trade agreement which Israel wants to be intialled at next week's EU council of ministers

Mr Kohl, stressing the growing economic and political power of Europe, said he would

By Julian Ozanno in Jerusalem hack Israel's demands for greater access to European markets and research and development programmes.

"If the people of the region can't find jobs or win bread for their families then there will be no stability," he said. "We want to give an increased privileged status to the relations between Israel and Europe and later on between the EU and the region and we want to promote this significantly."

Mr Kohl said that there were "on-going negotiations on this point and as usual there are certain difficulties" but he helieved they would he Israell officials said tha

chancellor's political backing could lead to Israeli cabinet ratification of the draft trade agreement with the EU today. Israeli officials said Mr Kohl had promised to back Israeli demands for observer status on the EU's resaarch and development committee; better accass for agricultural products; and for inclusion in negotiations on competition in public procurement, especially in tha talecommunications

Other German companies including Siemens and Daimler-Benz said they were negotiating deals and joint ventures with Israeli companies. Mr Mathias Kleinert, a. Daimler-Benz executive, said sales to Israel would more than double from DM400m last year to almost DM1bn within three years.

"Israel will be a launching pad and a power source for European companies looking at the region," said Mr Kleinert

Safe landing at an unpopular destination

The UK-US air deal fails to address the issues the airlines care most about, writes Michael Skapinker

he aviation deal agreed this week between the US and the UK was obviously fair and evenhanded, one of the participants said yesterday. Nobody likes it. The most strident objector was American Airlines, which complained about the "inability of the US to negotiate a quid pro quo for US airlines in the UK"

Many in the industry believe American Airlines was angry because the agreement gives its rival, United Airlines, the right to fly from Chicago to Heathrow. United, while welcoming the deal, is unhappy that it has been restricted to a Boeing 767, which carries only 211 passengers. Participants on the UK side

are slightly happier, although they helieve the agreement leaves them restricted in their ability to bid for US government husiness. They can carry US civil servants from five US cities to London, but not to points heyond, which they believe deprives them of 40 per cent of the government busi-ness available.

The European Commission will not like the agreement either. Mr Neil Kinnock, the transport commissioner last week repeated his threat to take legal action against RU countries which negotiated air agreements with the US bilat-

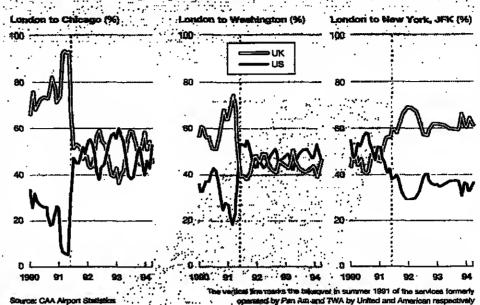
erally. He said the Commission should nagotiate for all EU countries, a position firmly rejected by the UK.

To anyone outside the aviation industry, the achievements of more than two months of negotiations between the UK and the US will appear paltry. British Airways can continue to offer a second daily flight between London and Philadelphia. United can fly between Chicago and London. UK carriers can bid for some US government business. The UK said last October that US airlinea can fly to UK regional airports; the US this week said thank

The agreement does not deal with the issues that airlines on both sides regard as important. The UK industry wants access to the US regions. Close to a third of the 10m passengers flying between the two countries each year begin or end their journeys in cities to which UK airlines are not permitted to

British Airways wants to be allowed to develop closer relations with USAir, the carrier in which it has a 24.6 per cent stake, than are currently permitted by US law. The principal US demand is to be allowed to fly freely into London's Heathrow, the world's busiest international airport.

Transatiantic market shares



Reaching the limited agreement the two sides announced this week was difficult. Mr Federico Peña, the US transportation secretary, was under essure from both American Airlines and from Congress to press for an "open skies" agreement of the sort be is negotiating with other European countries, rather than the

limited accord reached. The two countries struck their limited agreement last Friday, but Mr Pena felt unable to go ahead until the UK bad made a sufficiently strong commitment to discuss greater liberalisation, including the opening up of Heathrow. By Monday, the US felt it had received this commitment

and the two sides announced their agreement.
Talks will take place over the summer, but the US is likely to be disappointed with the UK response. The UK is not expected to agree to any substantial opening of Heath-

row. The UK is expected to ask for the Virgin Atlantic flight from

Boston to be shifted to Heathrow. In return, the US will be offered only one more route into Heathrow. The UK is likely to be prepared to discuss liberalising cargo and charter flights into the airport, but is expected to offer no more access for scheduled passenger

The UK position is that Heathrow is already bursting. A public inquiry has begun into building a fifth terminal, which will increase the number of passengers handled annually from 52m to 80m.

The increase in passengers will be achieved, however, by packing more of them on to each aircraft. The new terminal will permit no more than a small increase in flights. Heathrow has only two runways and the government has ruled out huilding any more.

One of the difficulties is that the two sides are demanding markedly different things. The US wants access to the UK's most important airport. The ITK wants access to America's less important airports.

One participant in the negotiations says: "The US wants apples and the British demand pears. These are not simple issues. To expect them to be resolved by September is unre-

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WORLD TRADE NEWS DIGEST

Fischler opposes **US trade link**

Mr Franz Fischler, EU agriculture commissioner, yesterday attacked proposals to create "a rich man's cluh" hy establishing a free trade area between the US and Europe. "I do not favour a grand design at this stage," he said, but indicated that after the EU intergovernmental conference next year, he might favour harmonisation of standards and

During his first visit to the US, Mr Fischler met congressmen and Mr Mickey Kantor, US trade representative and Mr Dan Glickman, agriculture secretary, to discuss US-EU

On bananas, Mr Fischler said he had never favoured the current regime under which the EU favours its former colonies in the Caribbean. Although "adjustments" can be made, the EU sees no way to redo the programme. Regarding the EU-US dispute over the use of hormones in beef, he said he will convene a conference and ask scientists to give their views.

Nancy Dunne, Washington

Dong Ah wins Libya contract

Dong Ah Construction of South Korea yesterday said it has won a \$5.7bn contract to build the third phase of Libya's man-made river project. Dong Ah has become one of South Korea's largest overseas construction companies due to work on the first two phases of the Lihyan project which has totalled \$9.1hn in sales. Foreign activity, primarily the Libyan project, accounted for 44 per cent of Dong Ah's turnover of Won2,008bn (\$2.63bn) last year. Dong Ah is South Korea's third

largest construction company.

The man-made river project, to be completed in five stages by 2020, is meant to tap Libya's vast underground water table and supply water to the country's main cities and rural agricultural areas. The contract for the third phase, which involves the laying of water pipes and drilling wells by 2007. will be signed in September.

Austrians in oil pipeline deal

Oil Capital, a US petroleum development company, says it has signed letters of intent with a consortium of Austrian industrial suppliers to provide equipment for a proposed \$1.8bn, 930-mile oil pipeline from the Caspian Sea to Turkey. The Austrian consortium, headed by Steyr-Daimler Puch, is expected to rely on Austrian export credits to finance its role in the proposed project. Mr Roger Tamraz, Oil Capital's chief executive, said the financing is based on a minimum commitment of \$500m.

Oil Capital is also negotiating finance for other elements of the project. A Chinese state company is said to be keen to build the pipeline. The proposed pipeline is being promoted as an option for transporting oil from fields being developed by a British Petroleum-led consortium in Azerbaijan to Turkey via Armenia. It is dependent on a peace agreement between Armenia and Azerbaijan. Robert Corzine, London

■ British Telecommunications has agreed a joint venture with Max India to bid for licences for operating cellular phone networks in India. BT said it would take 49 per cent of the venture's equity and Max India would have 51 per cent. The bids are being submitted to India's Department of Telecommunications after tenders for licences were issued in

ia has completed a \$550m June 1994 contract to deliver 18 MiG-29 fighter jets to Malaysia, freeing the way for deliveries to India. An official said four planes would be delivered to India in August, part of a \$220m contract to sell India 10 MiG-29s.

US tobacco giant Philip Morris Group has signed a contract to jointly develop at a Chinese factory a new cigarette brand for sale in China and abroad. The 15-year contract is the second between Philip Morris and the state-owned Ningbo Cigarette Factory in coastal Zhejiang province. Reuter, Beijing

Swedish telecoms company Ericsson has won an order worth approximately SKribn (\$137.24m) from Japan's Tokyo Digital Phone (TDP) for exchange equipment, radio base

Reuter, Stockholm stations and software. ■ Babcock International Group of the UK has won contracts worth \$200m to supply four coal-fired boilers to two 700MW Chinese power stations. Babcock is part of a consortium which has won contracts from the project worth a total

■ Mercedes-Benz Turk, the Turkish subsidiary of the German vehicle maker Mercedes-Benz, said it would inaugurate a bus factory near Istanbul on June 10. The factory, set up with an initial investment of DM65m (\$46.23m) in the Hosdere district, is designed to have an annual production capacity of 2,000 buses for intercity and municipal use. Reuter, Ankara

■ Cable and Wireless of the UK has applied to become Italy's third mobile phone operator. It is seeking a licence to operate a personal communication network and is in talks with five Italian financial and industrial groups as potential consortium partners. Italy has two licensed mobile phoner operators,

Telecom Italia SpA and Omnitel-Pronto-Italia. AFX, Rome Japanese trading house Marubeni said it will tie up with state-run China National Petroleum and Natural Gas (CNPC) in oilfield development and refinery projects in China. The two companies had been co-operating in projects outside China but decided to expand their relationship in line with the Beijing government's policy to invite foreign capital into its energy sector, a Marubeni spokesman said.

US fund set up to boost private sector investment in CIS states

By Jill Davidson in Washington

Overseaa Private Investment Corporation (Opic) of the US yesterday announced the creation of a \$250m fund to boost private sector investment in Ukraine and seven other nations of the former Soviet Union.

The fund will be financed by private investors, with Opic providing a guarantee of up to \$187.5m. More than half the investment will go to Ukraine, Belarus and Moldova with the remainder targeted towards Estonia, Kazakhstan, Latvia, Lithuania and Russia. Since Opic-supported private

ern CIS and Baltic States fund could ultimately hring more than \$2bn of private investment to the region. This is the second major announcement by Opic in the past two days. On Monday, during the visit of Hungarian Prime Minister Gyula Horn.

equity funds bave the poten-

tial to leverage more than nine

private dollars for every dollar

invested by the fund, the west-

Opic signed a contract to provide a \$70m loan guarantee for a joint project hetween US West of Denver, Colorado and Matay, the Hungarian telecom-

munications company.

The International Finance

Corporation, the private sector arm of the World Bank, will provide \$35m in loans and \$4m in equity for the joint venture, called the Westel 900 GSM Mohile Telecommunications Company.

Westel 900 is a \$185m project to design, construct and expand a cellnlar telephone system throngbont Hungary which would provide a low-cost alternative to land-line service. "The Westel 900 venture will provide a state-of-theart cellular telephone service for Hungarians, as well as support jobs in Hungary and pro-mote US exports," said Ms Ruth Harkin. Opic president.

ment intends to privatise the energy sector, reform social services, make Hungary's currency fully convertible and increase the private sector's contribution to the nation's GDP from 60 per cent to 80 per cent hy the end of

 Hungary and Ukraine last week announced they would set up a special economic zone on their common border to boost slumping trade between the former Comecon allies. Businesses would get tax exemptions and border controls would be eased in the

Four new hotels make it so much easier to do business in Germany



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attacks standards

A senior International banker yesterday attacked British

complacency over the education of its workforce Mr John

Bond, chief executive of HSBC Holdings, which owns Midling Bank and Hongkong and Shanghai Bank, said a British bank

clerk's qualifications would not gain him or her a job in Hong Kong. In Hong Kong his company's bank would not traditionally consider putting a member of staff on the country serving customers who did not have 2 A-levels, the school eram raised in Britain as a qualification for university entrance. In Britain

Midland's educational requirements for a similar job were four GCSEs, a less specialised exam taken two years before A-less? The comparison between the Midland and Hong Kong banks

in their recruitment policies demonstrated "worrying abort-comings," Mr Bond said. "We live in an era of unprecedented

resourcing given to education by our Asian competitors if we

are to keep ahead," he said. Countries such as Malaysia and

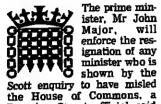
Hong Kong demonstrated a "missionary zeal for education."

UK NEWS DIGEST

HSBC chief

in education

Minister haunted by arms-for-Iraq saga



The prime minister, Mr John O Major,
O enforce t will enforce the resignation of any Downing Street official said

Mr Major refused, however, to comment on leaks of a draft of the report by Sir Rlchard Scott, a senior judge, into the conduct of ministers and government officials in relation to making no judgments on what may be in the report until the report is complete," he said in the House of Commons. "What we have seen thus far is the malicious leak of a part of the

ture minister, of having writ-ten "untrue" letters to MPs about the government's policy on arms exports to Iraq when he was a foreign affairs minister in the late 1980s.

Mr Waldegrave said he had no intention of resigning. He was given full support by Mr Major. In private hriefings to Tory MPs, Mr Waldegrave denied he had made misleading statements about the sale of arms to Iraq. The nub of the allegations against him is that the government had relaxed its embargo on the arms sales, but that he had consistently denied that there had been a change

"Neither l nor anyone else working with or for me took the view in 1988 and 1989 that there had been a change of policy which should have heen announced to Parliament". he told MPs. "There is no conceivahle reason wby I should wish The draft accuses Mr Wil- to have taken the absurd risk liam Waldegrave, now agricul- of consciously misleading par-

political gain."

Mr Waldegrave is angry that
Sir Richard did not help him to
seek an injunction against the
BBC preventing it from broadcasting the extracts from the leaked report on Monday night. At 4pm on Monday, his lawyer alerted the Scott inquiry team that the BBC had the leaked document. At 8pm, one hour before the BBC's main avening news broadcast, Mr Christopher Muttukumaru, secretary of the Scott inquiry, faxed a letter to Mr Tony Hall, head of BBC news and current affairs, requesting that the leak be not reported "in fairness to the individuals" involved.

Mr Major said that despite the leak he had "confidence Sir Richard will carry out that report thoroughly". Sir Richard is concerned, however, that there is a whispering campaign against him in parliament and in the government machine. and fears that leaks of his draft



Roseanna Cunningham (second left), Scottish National party victor in a by-election cansed by the death of a Conservative MP, took her seat in the Commons yesterday. Celebrating with her were the party's three other MPs: (from left) party leader Alex Salmond, Margaret Ewing and Andrew Welsh

report will serve only to undermine the effectiveness and credibility of his final version, according to his officials.

Lord Trefgarne, former trade and defence minister, said yes-terday: "It is clear to me that the draft extracts which have been made public do not give

adequate or fair regard to the considerable body of evidence which has been put before the

The Foreign Office said last night it was investigating allegations that the leak of the draft extract may have come

dures for the circulation of copies of Scott documents within Whitehall mean that the draft extract criticising Mr Waldegrave had been by several officials. Sir Richard was adamant that no one in his inquiry team had been respon-sible for the leak.

ants of housing associations

the right to buy their proper-

But this is being blocked by

the Department of Environ-ment which fears that private-

sector lenders to housing asso-

ment's proposals "didn't amount to a hill of beans".

executive of the Channel 4 tele-

vision network, described the

proposals as "a disappointment

but not totally negative". He

idea that the BBC should run a

showcase cinema in London's

West End devoted to launching

British films. "The BBC can't

even run their own finances,

never mind a cinema," Mr

Earlier Mr Dorrell explained

that the lottery money would

he invested in the way pio-

neered by British Screen,

which has invested £37m in

1,002 feature films since 1986

with government support.

Money from successful films

would he recycled in future

Mr Peter Gummer of the

Arts Council for England

emphasised that each applica-

tion would be jndged individn-

ally but thet Channel 4, com-

mercial television companies

and commercial film makers

such as Polygram, producer of

the hit movie Four Weddings

and a Funeral, could apply for

The Arts Council has

Mr Dorrell pledged support

received 89 film-related appli-

for the creation of a London

Film Commission, promised to

establish an advisory commit-

tee to examine the financing of

independent film production.

and promised to provide

£180,000 to support Cinema 100,

an organisation marking the

Camelot results, Page 21

centenary of the cinema

cations for a total of £42.1m.

Grade said.

Mr Michael Grade, chief

just as Britain had more than a century ago.

Lisa Wood, Employment Stat Change nears for Crown Agents A bill which comes close to privatising the Crown Agents: the

change and we need to match the dedication, entire

UK's overseas procurement organisation, last night crossed a significant hurdle in its passage through the House of Com-mons. The bill will transfer the Crown Agents to an independent foundation, with trustees appointed by the government of the soundation will retain a veto over its affairs for five years. The opposition Labour party claims the foundation is the first step to full privatisation. Mr Tony Baldry, a junior foreign

affairs minister, said the organisation was a "great British success story" providing procurement, management and technical services to 130 countries. But it was "no longer necessary or appropriate for the Crown Agents to remain in the public sector with all the constraints on their work that involves." ... George Parker, Westmanster

Miners vote for strikes

Miners employed by RJB Mining, owner of most former state coal mines in England, are to stage one-day strikes from next Tuesday with further stoppages every Friday and Monday in protest at a planned freeze in basic wages. The executive of the National Union of Mineworkers agreed unanimously to call the strikes after 83.4 per cent of members voted for industrial action in a secret postal ballot.

Robert Taylor, Employment Editor

Pill outsells condoms

Six million people in the UK regularly use contraceptives, says the Family Planning Association. Oral contraception - the pill - is much the most popular method, with 3.8m users, followed hy condoms with 15m. Research by the association on the economics of family planning shows that contraception prevents 3.8m unwanted pregnancies a year. Of these, 2m would have led to live births, and the remainder would have ended in abortion or miscarriage.

As a result, the association estimates, the state health service saves £2.6bn (\$4.1bn) a year - £2.1bn on the cost of births. £400m on abortions and £100m on miscarriages. The NHS spends only \$160m a year on family planning. Mr Jon Wareing,

Contraceptive preferences Number of mors Condom Diaphragm Vasectom

chairman of the Contraceptive Alliance which sponsored the research, said: "This report proves that family planning services are highly cost-effective and that unwanted pregnancies are very expensive for health and social services.

Vacant offices decline

The amount of office space available for sale or letting next to London's orbital motorway has fallen to the lowest level for at least five years, say estate agents Knight Frank & Rutley. A shortage of new buildings could spark a modest increase in development which has largely halted along the motorway since the recession, say the agents. The vacancy rate, which has fallen to 9.1 per cent compared with 14.4 per cent two years ago, is the lowest since the survey began in 1990. Only 219,500 sq m of new accommodation is available compared with an annual take-up last year of almost 250,000 sq m. . Andrew Taylor, Construction Correspond

Postmen bits back: Attacks by dogs on postmen delivering letters rose last year by 600 to a total of 6,000, said the Union of Communication Workers. Postmen in some English citie are being equipped with cans of spray to ward off dogs. The union said dog bites should be declared an industrial discut so that bitten workers would qualify for state compensation

Crash investigation: Police are investigating a crash in east ern England in which a £30,000 (\$47,000) Jaguar car ended upside down in a field by the road. It was being test-driven to a policeman to see if was suitable for the local force to use an armed response vehicle.

Trade plea coincides with drop in sales of new vehicles to private buyers

Aid sought for scrapping old cars

By John Griffiths in London

Car dealers and manufacturers yesterday called on the govern-ment to follow France. Spain and other European Union states in offering financial belp to motorists to encourage the scrapping of old and environ-

mentally "dirty" vehicles.
The Society of Motor Mannfacturers and Traders said the number of cars over 10 years old and still in use had risen to 7m - nearly a third of all cars from 5.5m in 1989.

The society based its argument on anvironmental grounds, but another incentive could be found in statistics it released yesterday showing only a slight year-on-year increase in new car registrations during May and a further collapse of sales to private

Total registrations last

largest European mannfacturer of construction equip-ment, yesterday warned of a softening of the UK engineering market. Mr John Patter son, managing director of JCB Sales and Service, said be expects growth in his compa ny's production volume this to slow markedly from 1994 levels to an increase of

J.C. Bamford Excavators, the

cent higher than the previous May's 150,070. But the increase was only the second monthly one this year and left total registrations for the first five months down 0.57 per cent to 816,972 from 821,515.

The gloomiest aspect of the May statistics was a year-onyear fall of 7.7 per cent in registrations to private motorists and stagnant registrations in the non-fleet business car secmonth at 152,658, were 1.78 per tor. In unit sales, these were

offset by an 11 per cent rise in fleet car registrations. But almost all fleet sales are cutprice, and carmakers and dealers look to the private and non-

between 8 and 12 per cent. He

said there were doubts about

the performance of the US

demand lifted JCB production

by 56 per cent to 18,045 machines. The company expects difficulties in the UK

and US to be offset by higher

sales in east Asia and main-

omy in the second half of

fleet business markets for sales profitability For the first five months of this year private registrations were 8 per cent lower, reducing their share of the total market

from 48 per cent to 44 per cent. Non-fleet husiness registrations were down 1.3 per cent

for an unchanged 7 per cent market share. Fleet registrations were up 7.4 per cent. accounting for 49 per cent of the market compared with 45 per cent in the same period last year. this year. Last year, a surge in Mr Ernie Thompson, so

chief executive, said last month's small total registrations rise was welcome, but if reflected "the continuing serious decline in private sales A consequence was an a

ing car population, he said. which was "very bad news for the environment ... new cars emit only a fraction of the pollutants of older vehicles and are far more fuel efficient".

The French incentives are considered to have helped the rebound of its car market last year, when sales rose by nearly 15 per cent. Car owners who traded in models more than 10 years old to buy a new car

More than 4m municipal homes may be privatised

By Our Political Editor

The government is considering privatising entire municipal housing estates and tower hlocks as part of a sweeping programme to improve the quality of low rent housing and increase the availability of cheap private sector accommo-

A housing paper which should be published in the next two months is expected by officials and ministers to contain 4.5m council-owned homes

ing companies" to buy dilapidated council housing. The companies would be financed entirely by the private sector. unlike existing housing associ-

The initiative is regarded in government as heing potentially as important as the rightto-buy policy of the early 1980s. which gave council tenants the right to purchase their bouses and flats at a discount. Up to

under the scheme. Dilapidated estates would be sold to the new companies at a comparatively low price, on condition they invested in renovating and refurbishing the proper-

The properties could not be transferred without the con-sent of their tenants, However, these tenants would be given guarantees that their rents would not rise sharply for a specified period - probably five

years - and would have a say in running the companies. Tenants might also be given a stake in the companies, so they could henefit from any increase in their value.

Mr John Major, the prime minister, is intent on making the provision of low cost housing one of his cornerstone pulicles in the run-up to the general election. Other proposals being considered are aimed at reducing the cost of land for

first-time buyers. About 25 per cent of the cost of new housing reflects the price of land. The government may give a subsidy to housebuilders for land purchase, so long as this saving was reflected in the selling

price of the houses. Also under consideration is an increase in land reclamation programmes, with the reclaimed land being allocated for cheap houses,

In an attempt to widen private ownership, Downing for the discounts.

State aid to film

The British

film industry

was yesterday

THE NATIONAL E80m (S125.6m) LOTTERY in new finan-

cial support over the next five

National Lottery. The esti-

mated amount would represent

the higgest injection of state

funds into the film industry for

10 years. The money - made

up of £70m to invest in film

projects and a further £10m to

increase the number of prints

of British films in the market –

would come from the Arts

Council of England, one of the

peneficiaries of lottery funds. Mr Stephen Dorrell, the

national heritage secretary,

made the first government

policy statement for the indus-

try since 1984 and admitted

that his own attitude to the

film industry bad changed

since he had "learnt more

In 10 years the British cin-

ema audience, he said, bad

more than doubled to 124m

admissions last year. More

films were made in Britain last

year than in any year since the

Mr Dorrell also said the

Treasury would "carefully con-

sider" the case for changing

the tax regime faced by the

film industry "together with

the logic which underpins it".

Mr Chris Smith, the opposi-

tion Labour party's national

heritage spokesman, quoted

Humphrey Bogart in Casa-

years using funds raised by the

ciations would be alarmed at the implicit fall in the value of properties if tenants were able to hny their homes at a discount. The government is therefore considering paying

Advisers 'failed to restrain publisher'

By John Mason, Law Courts Correspondent



Lawyers and accountants who advised the Maxwell empire failed to object to Rohert Max-

well's practice of running his companies' pension schemes as well as the companies themselves, a London jury heard

head administrator of the Maxwell pension funds, said nobody argued with the former publisher taking control of

pension funds. He was asked by a lawyer for Mr Kevin Maxwell whether any professional adviser or director had thought it wrong that Robert Maxwell should have such a dominant role over both his companies and the pension funds. Mr Cook, a prosecution witness, said: "There was concern and awareness of the position, but so long as his decisions benefited the pension schemes, I don't think anyone would argue against the transac-

Mr Kevin Maxwell, a son of Robert Maxwell, is one of four men charged with conspiring to defraud the pension funds to investment decisions for the prop up indebted Maxwell com-

panies. The other defendants are Mr Ian Maxwell (another son of Robert Maxwell), Mr hack if he needed the cash?" son of Robert Maxwell), Mr Larry Trachtenberg and Mr Robert Bunn, all former Maxwell company directors. All four deny the charges.

Mr Cook, a former director and compliance officer of Bishopsgate investment Management (BIM), the pension fund managers, was questioned about a number transactions in which shares were transferred between Maxwell com-He was asked by Mr Kevin "Was the Maxwell's lawyer:

position being accepted that

Robert Maxwell was using pen-

sion funds as a source of liquid

Mr Cook said the practice was for Robert Maxwell to give the pension funds first refusal for shares he was selling.

But Robert Maxwell was on "the other side", the pension funds, being offered the shares, the lawyer pointed out. Mr Cook agreed, saying it became established for the trustees to

accountancy firms, Cooper & Lybrand and KPMC Peat Marwick, had criticised the way BIM was run.

industry may reach \$125m By Raymond Snoddy

allow Robert Maxwell to operate as investment manager for He agreed, however, that two

being destroyed at the rate of thousands of very quickly by "slash trees a minute, how can planting and burn" farming methods. just a handful of scedlings make a difference? New tracts of tropical forest would then have

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to be cleared every two or three years.

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BUSINESS AND THE ENVIRONMENT

aking the environmentally damaging phosphates out of washing powders leads to more damage than if they are left in claims Landbank. the UK environmental consultancy. The statement is a brave one, considering the environmental case against phosphates.

Large-scale use has made phosphates a pollutant. They turn ordinary water into rich breeding grounds for algae blooms which take so much oxygen that all around them dies.

Phosphates, which make detergents' other ingredients more effective, were introduced into soap powders in the late 1940s by Procter & Gamble and soon accounted for around a quarter of most washing

The main cleaning agents in washing powders are surfactants, which attract soil and fats away from fabrics into the water. But surfactants work less well in bard water. Phosphates both soften water and hold the dirt in suspension, preventing it from reattaching

to the laundry.
In the European Union alone, consumers use 4m tonnes of washing powder a year, which is then emptied into their drains. Usually, the phosphates are not removed during waste-water treatment.

Many countries have moved to control the use of phosphates in detergents or ban them altogether. The first ban came into force in

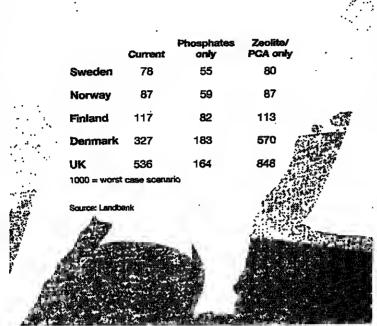
1972, in the Great Lakes region of the US and Canada. Other US states have followed and a federal ban is being considered. In Europe, Norway and Switzerland have imposed bans, Austria, Germany and Italy have introduced mandatory controls, and there are voluntary restrictions in Belgium, France, the Netberlands and Finland. The UK has no restrictions, but regulations elsewbere mean that few washing powders now contain phosphates.

Landbank argues that there is a better solution to the phosphate problem than banning them. In two life-cycle analyses, Landbank has conjured up a vision that would lead to a reduction in mining, transport, industrial effluent, and pollution, not to mention better washing powders - by using phosphates.

Manufacturers have turned increasingly to a mix of two ingredients to do the job of phosphates: zeolites, made from hauxite, the aluminium ore, and polycarboxylates, or PCAs, which are petrochemicals. In its first analysis, published last

year, Landbank concluded that the mining, production and transport of these alternatives were more damaging environmentally than the equivalent processes for phos-

Although the study was funded hy the world's leading phosphates producer, Albright & Wilson, Land-



Model of environmental damage

Jenny Luesby on the case made for reinstating phosphates to detergents

Lather over laundry

bank's environmental credentials dyes down their drains in the proinclude the fact that it is led by Bryn Jones, a former director of

Landbank used a panel of anonymous scientists to decide what pollution to include, how to measure it, and how to compare, quantitavely, the environmental damage caused by dissimilar pollutants.

The most interesting points raised by the report did not relate directly to the life-cycle model, but to two subsidiary issues.

The first concerned the relative performance of zeolite/PCA. When water hardness increases, more zeolite/PCA is needed to give a wash equivalent to that given by a fixed level of phosphates. Thus, many consumers use more phosphate-free detergent to produce the same effect, pouring extra bleach, enzymes, brighteners, perfumes and

The second point was that phosphates can be stripped out of effluent using water-treatment techniques standard in Scandanavia, whereas zeolite/PCA cannot,

Landbank's second analysis, just published, investigates the implications of these two points, by comparing pollution levels, with and without a detergent ban, in the Nordic countries where phospbate is widely removed from sewage, and the UK where it is not.

Its findings are stark, although they suffer from the limitations inevitable in hypothetical models. Landbank has drawn on an even wider panel of scientists, monitored by an independent scientific auditor, to agree the assumptions used in the model. But this has not made

the results factual - a typical exam-

ple is the pollution points attached by the panel to zeolite/PCA: it is not known that they pollute, but it is also not known that they do not pollute. So they are scored, in the final indices, as if they do pollute,

as they represent a potential risk.

Landbank bas run sensitivity analyses to see how different the indices become if each individual assumption, and the pollution points that go with it, is The results suggest that the pollu-tion gains from phosphate detergents do not depend on any one. possibly weak, link in the model.

The report's main conclusion, that better waste-water treatment is the most environmentally effective way of dealing with phosphates, sits interestingly, again, with the choice of sponsor. The report is funded by Kemira of Finland, a leading supplier of water treatment systems. Nonetheless, the report offers a

detailed analysis of the logic of ban-

ning phosphates, and the possible gains from alternative measures. Phosphates are also used in food additives, animal feeds and industrial wastes. They are one of the main ingredients in fertilisers, and comprise a substantial component of burnan waste. Of all these, only detergents were an easily addressed target, and their scale was significant - detergents still account for some 6 per cent of new phosphates entering the UK. But banning them

could never be a solution on its When the Great Lakes authorities first proposed the detergents ban. they also recommended more intensive sewage treatment, and measures to prevent fertilisers draining into rivers and lakes. It has been these changes that achieved most in curbing phospbate levels in the Lakes, the Landbank report argues. And once phosphates are removed from sewage, there are other considerable environmental benefits, it says. For instance, the processes that remove phosphates also capture many of the heavy metals that make sewage sludge unsuitable for use on agricultural land.

Where the phosphates extracted are formed into pellets, these can be suitable as a raw material, which would cut the need for mining.

"No one says phosphates are not bad," says John Driver, manager of regulatory and environmental affairs at Albright & Wilson, "But they are more easily removed than the alternatives, and they are recyclable in a way which makes fully recyclable sewage possible."

Landbank's vision is neither obvi-

ous nor simple. Rehabilitating phosphates in washing powder will be a tough act. But persuading water authorities of the benefits of a capital investment programme to achieve recyclability is likely to be tougher still - even if it were, ultimately, self-financing.

Sheep farmers' unlucky dip

Organophosphates producers are under pressure over allegations of danger to users, writes James Harding

heep farmers face a tough dilemma: a choice between their flock. Organophosphate dips help protect sheep from scab, blow fly and other lethal diseases. But they could also be endangering farmers' health.

With mounting scientific evidence linking organophosphate dips with human illness ranging from nervous disorders and suicidal depression to paralysis, pressure for a ban on organophosphates is growing.

Agrochemicals manufacturers are being arged to either defend their industry, for fear that any UK ruling could have global repercussions, or to offer farmers inexpensive and effective

Although a long way from proposing an outright ban, the UK government has taken an increasingly stern view of organophosphates in recent years. In May, a study sponsored by the Health and Safety Executive concluded that "exposure to organophosphate-based pesticides appears to be associated with subtle changes in the nervous

Even this tentative criticism of organophosphates marks a substantial shift from previous government opinion, which denied any unacceptable health risk from OP exposure. In the next two veeks, the government is inviting applications for further research. If selentists confirm anecdotal evidence suhmitted to the British Medical Association, the government attitude to organophosphate dips may harden

Dr Richard Bernhardt, a general practitioner from Kent, cites a previously healthy young farmer who after exposure to organophosphate dips suffered increasingly debilitating inflammation of the heart until his fourth exposure to the chemical prompted a collapse

from nausea and a cardiac arrest. Dr D R Davis, a consultant osychiatrist in Taunton, describes the levels of anxiety among farmers and high incidence of bulimia nervosa in young farming

men, and concludes that "the arguments are so strong that psychiatric disorders may be caused by OP [organophosphate] exposure, that the government should be considering a moratorium on their use".

Representatives of the organophosphates industry respond that they will "fight to the bitter end on any ban".

That may seem excessive vehemence in defence of revent for organophosphate dips in the UK worth less than £7m last year, but the industry's fear is that any ban on sheep dips could have damaging repurcussions for organophosphates used as

pesticides throughout agriculture. Sales of organophosphate crop protection products in the UK last year totalled £448m, according to the British Agrochemicals

Industry vets dismiss research suggesting a health risk as

hearsay, anecdote and poor science' Association, and estimates of the

industry's global turnover run into several billion dollars. Industry vets dismiss the research suggesting a health risk as "hearsay, anecdote and poor science". Agrochemicals producers argue that public anxiety - fed by

allegations that exceptionally high suicide rates among farmers and even Gulf War Syndrome among UK servicemen can be linked to OPs and that sprayed crops could be poisonous - results from misunderstanding. Richard Trow-Smith, spokesman at the BAA, explains:

"Organophosphates are a large group of compounds and you would not ban mushrooms because a few toadstools are lethal. Tuxicity in OPs is similar to that in the fungus family. The National Office of Animal

Health (Noah), which represents producers of animal medicines, claims that statistically the problem is negligible. Between

1985 and 1992, there were 247 reports, many temproven, of problems involving OP dips, in which period Noah estimates there were more than 3m contacts between humans and sheep dips.

Where there have been reports of illness after organophesphate use: grochemicals producers say most of them have been traced to most of them have been traced a farmers mishandling the pesticities. "All the information that you need is on the label. If you see reading the label and doing the lab properly then there should be no problem at all," says, one amount health officer at an international agrochemicals

The industry says it is already developing non-contact. applications to assuage concerns. For the sheep dippers this means pour-on blowly and scab treatment. For crop sprayers, organophosphate producers offer "closed systems" to transfer OPs into sprayer tanks.

Agrochemical producers at the noment believe that if the government acts at all it may opt for a policy that puts the burden of responsibility on the users.
With requirements that OPs are
only handled by trained and

certificated users in assessed protective clothing, "the government will farm out exposure to the problem," one industry official forecasts.

Manufacturers say they can offer alternatives to nrganophosphates for both crop and livestock projection, but at a higher cost. The problem, says Phil Dobson, animal health officer at Ciba Agriculture, which. produces organopliosphate sheep dips as well as more expensive alternatives, is that "even though there is an alternative [treatment] for each of the diseases, if you banned OPs you could not get a product that offers the san efficacies across the board. Nor one that is so cheap

Ultimately, OP producers suggest, that is the larmers' real dilemma; not between human and animal welfare, but between a cheap and powerful pesticide or more expensive alternatives and peace of mind.

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MISTERD 131

Television/Christopher Dunkley

Documentaries with attitude on history

ery few programme types are pure television. The varions sorts of drama have mostly been taken from theatre and cinema. news programmes have borrowed from newspapers and cinema newsreels, and even the pop video which looks like television sui generis actually originated as a film loop produced for juke boxes. However, one form that television

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really can call its own is the history documentary with attitude - a pretty odd and specialised sort of programme, perhaps, but one which hecomes increasingly common. Among those running at the moment are two series on BBC2: Strange Landscape which is trying to make sense of the middle ages, and The Living Dead which says it is is about "the attempts of those in power to control the past". The same network brought us Progress Through Politics on Sunday, in which John Cole combined autobiography with an outline of British politics during his years in newspapers and television.

The important difference between these programmes and any old history or documentary programme is that these are not just informational or observational but are inspired by some sort of thesis. And the vital requirement if you are to succeed is that there should be just one editorial voice and it should be quite clear about what it wants to say.

Of the three productions reviewed here, John Cole's adhered most closely to that rule and the result was a programme which was clear and enjoyable even if it hardly knocked you sideways with its revelations or the novelty of its insights. We are entirely accustomed to a mixture of autobiography and opinion in book form, but the combination is less common on television where there are worries about "balance", especially in

the case of politics. Cole seems to have got away with it because, first, he is not a politician, second, he was for some years the BBC'a political editor thus proving his trustworthiness, and third, and above all, because his own political beliefs happen to lie somewhere in that broad central area covering one-nation Torles, the SDP and almost the entire Labour party except for its extreme left wing. He is a "Butskellite", just like so many in the BBC, and, as he made clear to this programme, greatly disliked Thatcherism. Would be have been allowed to make it if he had been a supporter of the Militant Tendency or the National the BBC in the first place, so the question would not have arisen. Remember, there used to be a government intelligence man in Broadcasting House who put a Christmas tree sticker on your personnel file if you were not considered pukka.

Much the same "one of us" test was

used by the medieval church in rooting out dissidents such as the Albigensians, as Christopher Frayling explained in the second episode of Strange Landscape. There were hints at the start of this series that it would be indulging in the same sort of electronic party tricks which have ruined other recent history series, but there has actually been tolerably little.

t has succeeded in conveying a strong sense of how it mey have felt to live in, say, the 12th century, which is no mean trick. What has somewhat spoiled it is a subtle mis-match between the work of the presenter/ script writer and the work of the film makers. It looks as though Frayling (or someone) wrote an outline, the film makers and researchers then went off and found all sorts of medieval churches, castles and pictures, working up a whole lot of dramatised sequences for good measure, and Frayling then tried to "write to picture". If this (a common enough approach) is not what happened, and the entire undertaking really was organised to serve Frayling's thesis, then someone has a lot of explaining

For instance, what purposa was served in this week's programme by the long impressionistic sequence about the Inquisition? Frayling described the organisation nicely as a cross between a detective agency and a court of law, but the film sequence - set in a Robin Hood castle, shot into the light, full of smoke or steam, with a lot of muttering about women listening to heretics - hinted without stating. It is hard to believe that Frayling asked for the sequence, not least because be remained silent throughout. And what was supposed to be the connection between the brutal suppression of the Albigensians and the rise of Francis of Assisi? You could see that Frayling might want to cover both subjects, but why shmita-neously? We were subjected repeat-edly to "Meanwhile back at the ranch" sequences. It feels very much as though there is more than one anthor at work here.

On the other hand Adam Curtis is Nazis were much like other people. interesting aspect of this opening mass media. But as ever structure, clearly the onlia begetter of The Considering the slaughter and torture programme was the account of and especially the dictatorship of the



A 'medieval' montage illustrating Christopher Frayling's series 'Strange Landscape'

and director. Yet, judging from the first of his three episodes, either he is confused about what he wants to convey or he has failed to find a way of conveying it clearly. This programme seemed to be saying (a) that the Nuremburg trials did not investigate the causes of Nazism, but who thought they could or should or even might? Then (b) it implied, as though this were a blinding revelation, that all of us have within us some trace of that inhumanity which characterised Nazism; that far from being inhuman anomalies the

mention the medieval church, that hardly astonishes. Anyway, it has all been said many times before. So why blame the Nuremburg trials for failing to investigate the origins of such behaviour? The programme introduced us to

former American soldiers who felt that the "We're good, they're bad" attitudes of Nuremburg were too simple. But, once again, that just is not news. To find yourself using more evil than you had intended to order to conquer evil has been a common experience down the ages. The most

argue a pragmatic case for Nazi policies in pre-war Germany, though this did not seem to form a central part of Curtis's thesis. Furthermore even this side issue was confused by details about nail varnish, parties organised by the American bureaucracy, and a bafflingly irrelevant account of one bureaucrat boping to date a woman named Nancy but discovering ber brother worked in the same office.

Documentaries with attitude can enable television to move closer to the free speech traditions of the older Front? In those circumstances be Living Dead, being writer, producer under Stalin and Pol Pot, not to Goering's willingness at the trial to picture, can be problematical.

Recital/David Murray

The Haefligers, père et fils

lovers of a certain age (not all that old), Ernst Haefliger's name stands for an admired style: cool and selfless, hnt scrupulously expressive of line, so perfectly practised as to sound natural and easy. This Swiss tenor has been an ornament to innumerable performances and recordings of Bach's Passions and cantatas, and the earlier Mozart in particular, in recent years he has continued to sing, but mostly to teach. He turns 76 next month, and has at last decided to retire from the platform; the Schubert *Winterreise* he sang at the Wigmore Hall on Friday was a

farewell. As it happens, Haefliger'e pianist-son Andreas has risen to great acclaim these last two or three years, in all the musical capitals. It must have en e great satisfaction to Haefliger père that he could have him to accompany this Winterreise not just as a filial tag-along, hnt as a serious partner. The son did him proud. Though his preferred solo address is more robustly dramatic, be reduced his normal dynamic scale to match his father's; neither he nor Schubert seemed to lose anything at all by that, and yet the 75-year-old tenor was kept in unchallenged relief. It is, and sounds like, a 75-year-old voice – frail and

reedy, taking more breatb-pauses than be used to, though most artfully placed. Haefliger's timbre was never specially melting in its own right; indeed, be probably thinks that affective,

cosmetic nuisance in real music. What was truly astonishing was his complete musical control of his ancient

We beard at once what kind of voice it is now - but also. and throughout, its undiminished ability to shape every phrase to Haefliger'e mature purpose, its phenomenally true pitch, its capacity for (relatively) loud despairing outcries as well as telling sotto voce asides. Many recitals by artists who have gone on too long leave macabre impressions: they make us recall their palmier days, now cruelly self-caricatured or patchily reproduced. Haefliger, even at his improbable age, needed no allowances made.
He fixed the dimensions

within which he would operate very early on, measuring the highs and lows on a canny scale that soon imposed itself as a norm. Accordingly, a little tone went a long way again and again; the sharpest onthursts - Winterreise has some agonising peaks - struck home as cleanly as in bigger readings by expansive younger

We have heard Winterreise rendered with greater outpourings of passion, but not with more plain, bleak, unshowy insight than this. Strictly Classical in style, hardly at all Romantic, but direct and scathing, it was a model lesson from an undimmed master (not to forget his son). A lesson to us all, in fact; and one felt somehow privileged to have

Jazz/Garry Booth Sonny Rollins

bere is something about Sonny Rollins' exuberant dismembering and reassembly of a tin pan alley tune that encapsulates all that has happened in jazz music since the war. This protean improviser can take a faded beanty such as "Cabin In The Sky", gather up the blues, behop, post-bop and the squeaky stuff of the 1970s, and make all the connections to give the tune new life. Then, when you think be has shown you everything, the saxophone colossus reminds yon of his real roots by sliding into a

calypso. Rollins is one of the most important figures in post-war jazz. Sixty-five years old this year, be began on tenor in 1947. By the early 1950s he had fully developed a robust style which combined the blue drive of Dexter Gordon with the melodious invention of Lester Young. In the mid-1950s be added the entirely disparate influences of Miles Davis's rarefied tempo settings and Thelonious Monk's off-kilter swinging through work with both. All this came together with Clifford Brown and Max Roach in the hard bop band to end them all. Study sabbaticals and adventures into the avant garde followed until the 1970s and the formation of a quintet vehicle for his improvisation.

the leader's extraordinary physical and musical prowess. where accompanists exist to anchor his soaring improvisation. So it was at the Barbican Hall on Saturday, with Rollins in the middle of a European tour. But it would be unkind to say that this sextet of plano, bass, trombone, drums and percussion is boring. Rollins likes a rock-steady ground support crew and that is the way this band is.

performances bave remained a no bolds barred exhibition of

"Yon" had Rollins in characteristic born-pointed-to-the-beavens mode filling the hall with a blizzard of ideas and notes. Rodgers and Hart's "Falling In Love" was blown inside out to a background of golden harmonies from Clifton Anderson's trombone: Bird's "This Is Always" was initially tackled straight until bitter sweet tones gave way to a probing examination of every corner of the tune.

"Don't Stop The Carnival", a calypso comfortable as an old shoe, was run ragged, Rollins wimpering, squealing and ultimately baying to the bridge. A standing ovation ensned and Rollins, with characteristic wit and timing. played us out with "Foggy Day In London Town". There are no big surprises left in the man, but be continues to be reassuringly astonishing.

Theatre/Sarah Hemming

Borchert's 'Out in the Cold'

mong the most interesting radio programmes on VE-Day was a half-hour documentary that hopped over the fence and gave ordinary Germans the opportunity to remember their experience of the end of the war. Many of them talked of their extreme poverty, their sense of betraval and their bitter discovery that they were now disgraced hy virtua of being German.

Wolfgang Borchert's Out in the Cold (Draussen vor der Tür), given a welcome showing at Greenwich Studio Theatre, digs further into this disillusionment by giving us the experiences of a young German soldier, returned from Siberia with no kneecap and no comrades, to find himself still out in the cold.

The play is based on Borch-

ert's own experiences. A hud-ding writer and performer, he it all hy jumping into the Elbe. The river, however, kicks him was posted twice to the Eastback out and, accompanied by his optimistic alter-ego, the ern Front, where his health was ruined. He died, aged 26, ruined little man begins a bizarre odyssey around the civilian world that will bring in November, 1947, just one day before his play had its home to him how unwanted he stage premiere. The experience

mind: the play, which operates on many levels, could be read The play, composed as a series of short, surreal epi-sodes, has the structure of a as a tour around a mind strugparable, zips in and out of natgling with horrific post-trauuralism like a Potter screenmatic stress play and is laced with wither-Our soldier, Corporal Becking irony and black, black mann, haunted by the futile comedy. It could be a nightcarnage he has witnessed and mare, or the weird last visions tortured by the discovery of his wife's infidelity, decides to end of the drowning soldier - what-

ever, it was clearly written fast by a young, feverish and furi-ous mind. It is crude, didactic and distinctly patchy, but it burns with ambition and energy and what comes bowling out of it is the anguished cry "Why?"

It is good to see the fine Greenwich Studio company, who have won awards for their crystalline productions of rare classics, taking on this difficult option. The production, directed by Margarete and Julian Forsyth, accentuatee the play's strongest aspects by setting it in a cabaret context. This belps to support its

switchback style and macabre comedy and to contain its array of thinly-sketched allegorical and grotesque charac-

Eddie Marsan gives an arresting performance as Corporal Beckmann, making him a pathetically comic figure, with his shaven head and worn greatcoat and his regulation gasmask spectacles clamped to his head like fish-eyes.

For the most part, the company carries the play successfully, though there are a few rough patches where it does not overcome the immaturity of the work and where perfor-

or seem uncertain (exchanges hetween Beckmann and the Optimist remain stilted, for example). But it does release the immediacy and urgency that fuel it. Who will forget Beckmann's recurring night-mare about an armless corporal playing a xylopbone of bones (shoulder blades and pelvises for the low notes; fingers, toes and teeth for the high notes)?

mances either go over the top

And the production reminds you that Borcbert's mature work was never to be written. The play emerges as an irate tribute to a generation of young men brought up on stories of one war and eclipsed by

Continues to July 2 at Greenwich Studio Theatre, London SE10 (0181-858-2862).

INTERNATIONAL ARTS

■ AMSTERDAM

CONCERTS Het Concertgebouw Tel: (020) 871 8345

 Royal Concertgebouw Orchestra: with the Netherlands Radio Cholr. Mariss Jansons conducts Schoenberg and Shostakovich; 8.15pm; Jun 9 OPERA/BALLET

Die Meistersinger von Nümberg: by Wagner. Hartmut Haenchen conducts the Netherlands Philhermonic Orchestra and soloists Jan Hendrik Rootering and Siegfried Vogel; 5.30pm; Jun 7, 10, 13

Het Muziektheater Tel: (020) 551

BERLIN

CONCERTS Deutsche Oper Tel: (030) 34384-01 Orchestra of the Deutsche Oper Berlin: Jiří Belohlávek conducts Shostakovich and Brahms; 8pm; Jun

Konzertheus Tel: (020) 309 21 02/ Berlin Symphony Orchestra: with

pianist François-René Duchable. Michael Schoenwandt conducts Franck, Bürger, Debussy and Bizet, Bom; Jun 9

also cost him his peace of

 Moscow Chamber Orchestra:
with violincellist Bons Pergamenschikow. Constantine Orbelian conducts Mozart and Tchaikovsky, 8pm, Jun 7
Orchestra of the Deutsche Oper Berlin: with pianist Bruno Leonardo Gelber, Jiri Belohlavek conducts Shostakovich's "Symphony No.1" and Brahms' "Concert for Piano and

OPERA/BALLET Deutsche Oper Tel: (030) 34384-01 The Force of Destiny: by Verdl. A new production conducted by Rafael Frübeck de Burgos and produced by Hans Neuenfels; 7pm; Jun 9

Orchestra No.2"; 8pm; Jun 8

COLOGNE CONCERTS

Kölner Philharmonie Tel: (0221) 2801

 New York Philiparmonic: Kurt Masur conducts Beethoven'a "Symphony No.7" and Shostakovich's "Symohony No.5": 8pm; Jun 10

 Radio Symphony Orchestra Cologne: with planist Mark Zeltser conducts Mussorgsky, Rachmaninov and Shostakovich; 8.15pm; Jun 7, 8

■ LONDON

CONCERTS Barbican Tel: (0171) 638 8891 London Symphony Orchestra: with violinist Gil Shaham. Andre Previn conducts Vaughan Williams, Prokoflev and Strauss; 7.30pm; Jun Royal Festival Hall Tel: (0171) 928 8800

 Itzhak Perlman: violinist with the Philharmonia Orchestra. Lawrence Foster conducts Beethoven; 7.30pm; Jun 10

 Itzhak Periman: with the Philharmonia Orchestra, Yoel Levi conducts Brahms' "Academic Festival Overture" and "Violin Concerto" plus Mozart's "Violin Concerto No.3"; 7.30pm; Jun 13 Murray Perahia: pianist plays Scarlatti, Handel, Beethoven, Schumann and Chopin; 7.30pm; Jun

 Philharmonia Orchestra: with violinist Maxim Vengerov. John Eliot Gardiner conducts Elgar, Bruch and Mendelssohn; 7.30pm; Jun 8 GALLERIES Royal Festival Hall Tel: (0171) 928

 Art Unlimited: multiples from the 1960's and 1990's including work by Damlen Hirst and Jenny Holzer, to

Serpentine Tel: (0171) 402 0343 Mark Wallinger, exhibition that surveys the full range of Wallinger'a painting, photography, sculpture, installations and video; to Jun 11 OPERA/BALLET Royal Opera House Tel: (0171) 304

 Billy Budd: by Britten. A new production conducted by Robert Spano and directed by Francesca Zambello. Soloists include Graham Clark, Francis Egerton, John Duykers and Rodney Gitfry/Peter Coleman-Wright; 7.30pm; Jun 9, 13 La Bohéme: by Puccinl. Conducted by Jan Latham-Koenig and directed by John Copley. Soloists include Cynthia Haymon, Nancy Gustafson and Roberta

Algana; 7.30pm; Jun 8, 10 (7pm) THEATRE

Ambassadors Tel: (0171) 836 6111 The Killing of Sister George: by Frank Mercus. With Miraim Margolyes, Serena Evans and Josephine Tewson; 8pm; Donmar Warehouse Tel: (0171) 369

 Insignificance: written and directed by Terry Johnson. Cast includes Frances Barber, Alun Armstrong, Jack Klaff and Ian Hogg; 8pm; from Jun 7 (not Sun) National, Cottesioe Tel: (0171) 928

 Richard II: by Shakespeare. Deborah Warner's new production featuring Fiona Shaw as the king; 7.15pm; Jun 12, 13 National, Olivier Tel: (0171) 928

● Under Milk Wood: by Dylan Thomas. Directed by Roger Michell and stars Robert Blythe; 7.15pm; Jun 12, 13 (2pm)

 Women of Troy: by Euripides, translated by Kenneth McLeish and directed by Annie Castledine; 7.15pm; Jun 9, 10 (2pm)

LOS ANGELES GALLERIES

County Museum Tel: (213) 857

 Kandinsky: Compositions: six of the seven surviving "Composition" paintings are presented along with 25 preliminary studies which trace the artist's evolution; to Sep 3

■ MUNICH GALLERIES

Haus der Kunst The Splendour of The Famese: exhibition that brings together art collected by the Famese dynasty in the Italian Renaissance with statues, medals, coins and more than 130 paintings by the likes of Parmigianino, Breughel, Sebastian del Piombo and Titian; to Aug 27

PARIS CONCERTS

Châtelet Tel: (1) 40 28 28 40 New York Philharmonic: Kurt Masur conducts Strauss' "Métamorphosia" and Beethoven'a "Symphony No.3"; 8pm; Jun 7 New York Philharmonic: Kurt Masur conducts Shostakovich and Beethoven; 8pm; Jun 9 OPERA/BALLET Champs Elysées Tel: (1) 49 52 50

 Ezio; by Handel, Conducted by Robert King, directed by Stephen Medcalf and with the King'a Consort, Soloists include James Bowman, Susan Gritton and Dominique Visse; 7.30pm; Jun 7, 9,

Opéra National de Paris, Bastille Tel: (1) 47 42 57 50 Les Capulet et les Montaigu: by Bellini. Conducted by Bruno Campanella and produced by Robert Carsen. Soloists include Jeffrey Wells, Cecilia Gasdia and Jennifer Lamore; 7.30pm; Jun 9, 12

■ VIENNA CONCERTS

Wiener Kammeroper Tel: (1) 512

 Viennese Philharmonic Orchestra: with soprano Deborah Voigt and baritone Bryn Terfel. Giuseope Sinopoli conducts Schoenberg and

Zemlinsky; 7.30pm; Jun 9 Wiener Konzerthaus Tel: (1) 712

Since then, Rollins'

 South Western Radio Orchestra: with soprano Julie Moffat, Ingo Metzmacher conducts Webern and Mahler; 7.30pm; Jun 12

 Symphonic Ensemble: Franz Welser-Möst conducts Liszt's "Les Préludes" and Shostakovich'a "Symphony No.7"; 7.30pm; Jun 7 Viennese Symphony Orchestra: with soprano Christiane Oelze.

Michael Glelen conducts Mahler and Webern; 7.30pm; Jun 8 Viennese Symphony Orchestra: with planist Radu Lupu. Kurt Sanderling conducts Beethoven and Shostakovich; 7.30pm; Jun 10

 War and Peace: by Prokofiev. Concert performance with Pinchas Steinberg conducting Austrian Radio Symphony Orchestra. Soloists include Elena Prokina and Marina Shutowa; 7.30pm; Jun 13

■ WASHINGTON THEATRE

Folger Theater Tel: (202) 544 7077 Tha Merchant of Venice: by Shakespeare. Commemorating the 400th anniversary of the play, this production is directed by Joe Banno: to Jun 25 Kennedy Center Tel: (202) 467 4600

 Angels in America: Part One, The Millenium Approaches, Tony Kushner's Pullitzer prize and Tony-award winning play about sex, politics and religion; 7.30pm; to Jun

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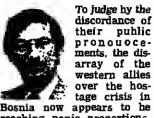
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Ian Davidson



tage crisis in Bosnia now appears to be reaching panic proportions. The dispatch hy Britain and other countries of substantial military reinforcements is no doubt intended to look like a strong response to the aggression of the Bosnian Serbs. But it is now difficult to helieve in any outcome hut an ignominious retreat of the UN peacekeeping operation from former

Yugoslavia. If that were to happen, the first consequence would be a comprehensive downgrading of the UN's future peacekeeping role. This might not he all bad if it meant the injection of a hit more realism into expectations of what the UN can do. Unfortunately, there is also a serious risk that the Atlantic alliance would be damaged as a hy-product of a UN retreat.

After the emergency meeting in Paris on Saturday of west-ern defence ministers, Mr Mal-colm Rifkind, the UK defence secretary, declared that the Bosnian Serbs made a "massive miscalculation" when they took the UN peacekeepers hos-tage. ft is hard to detect any solid justification for such hravado. He said that the Bosnian Serhs "have inevitably put themselves in the firing line" hut we can only guess at what

he meant by these words. Did he mean that the British reinforcements are being sent to wage war against the Bos-nian Serbs? Or that they are being sent to rescue the British hostages by force? Surely not. It may sound good to imply that Britain will smite the wicked. But Britain has no interest in fighting a war in Bosnia, and it has neither the mandate nor the military

The only reason Britain, France and the other countries have troops in Bosnia is to carry out a UN peacekeeping mandate, with no authority to wage war, and strict constraints on the exercise of military self-defence. The results of that mandate so far are at best controversial, at worst appallingly unsatisfactory. Quite a lot of civilians have been kept alive who might otherwise have died, and some people believe that this is sufficient

Retreat into panic

UN withdrawal from Bosnia could damage the Atlantic alliance

justification for the operation. But there is no peace, and it seems no nearer than when the UN peacekeepers were first

On the cootrary, the military escalation by the Bosnian Serbs suggests it may be further away than ever. Considering that they have conquered 70 per cent of Bosnia hy war. and are being offered only 51 per cent of Bosnia at the negotiating table, they have some reason to think they do better hy war than by negotiation. The extra troops being sent hy western countries may

The initiative lies with those making war, not with those who want to make the peace

make the local UN commanders feel slightly more secure: they may even make them more secure in reality. The problem is that the main hostages held hy the Bosulan Serbs are not the UN soldiers but the civilians in Sarajevo and the "safe areas"; and they cannot he defended against deliberate siege hy peacekeep-ing methods. Any western commander who was tempted to raise the military stakes would know in advance that it would not take many casualties before public opinion at

home demanded a halt. The dispatch of reinforcements may improve the tactical options. But it will not change the strategic dilemma. which is that the initiative in Bosnia lies with those who are making war, not with those who would like to be making peace. The west does not have the authority, or the capability. to impose peace on the warring parties and in the last resort, it does not have sufficient interest in trying to do so.

This is, no doubt, one reason why Mr Douglas Hurd, the UK foreign secretary, has warned that the sending of reinforcements might not work; and that if It did not work the UN peacekeepers would have to be evacuated with the help of

An evacuation would he a major military operation, since the end of peacekeeping would mean the end of all restraint and a renewed surge of civil war. Some of the combatants might try to prevent the depar-ture of the UN forces, others might try to take away their weapons and supplies. In other words, the peacekeepers might have to fight their way out. and their exit might require an extra 50.000 troops, or twice as

many as are there now. No-one knows for sure whether Nato can meet the challenge of such an evacuation. In principle, the US has promised to provide half the ground troops needed. But under pressure from his critics in Congress, US President Bill Clintoo has done so much ducking and weaving oo the snhject of American troop deployments in the past week that we cannot be sure that the promise is still good.

The reason is that the US and Europe have long been diametrically opposed on policy towards Bosnia. As a result. the end-game may turn into a no-win situation for the alliance, For if the US does send troops to rescue the Europeans from Bosnia, and in the process takes its share of casualties, the growing isolationism of rightwing Republicans will be massively reinforced, and America's commitment to Nato could be jeopardised. But if, oo the other hand, the US does not send troops, it is Europe's commitment to Nato and trust in America which will be damaged, perhaps irreparably.

This would be a deplorable hy-product of the civil war in Bosnia but it would put into perspective the long-running controversy over whether Nato should be enlarged to include the eastern Europeans, or whether instead we should give priority to our relations with Russia. Last week Nato seemed to have decided in favour of good relations with Russia. But the choice will matter much less if Nato itself is seriously damaged.

hy, you might ask, would the quaintly named Royal Society for the encouragement of Arts. Manufactures and Commerce (RSA), founded in 1754, have anything useful to say on the management of Britain's corpo-rate sector in the late 20th cen-

One possible answer is that the findings of its two-and-a-half-year-old inquiry, Tomorrow's Company, published yesterday, result from the cooperative effort and sponsorship of some of the UK's leading companies. A more compelling one is that the RSA has a visioo of corporate activity that speaks more closely to the times than the 1980s vogue for a narrowly defined version of "shareholder value".

The Anglo-Saxon version of capitalism is desperately short of legitimacy. That, surely, is the lessoo from the recent uproar over the pay of the directors of privatised utilities. The chief aim of the RSA's inquiry, under the leadership of Sir Anthony Cleaver of IBM UK, is to stimulate competitiveness. Yet it offers a view of the sources of sustainable husiness success that could help legitimise the wealth creation process in an increasingly hostile environment.

The starting point is the belief that husiness activity is changing in ways that make the management of physical assets less important. The role of people and relationships inside and outside the company is what will count for more in the 21st century. Future success, the RSA report argues, will depend on the proper management of the network of relations with employees, customers, suppliers. investors and the community.

This claim, unimaginatively "the inclusive duhhed approach". has much in common with stakeholder theory which refers to relationships with groups such as employees, suppliers and creditors as well as shareholders. But It does not imply that the other stakeholders must invariably be rewarded at the shareholders' expense in a zero-sum

game. Nor. contrary to a hostile interpretation placed on the report yesterday hy the Institute of Directors, does lt advocate any form of accountability to stakeholders. The message, rooted in the

experience of individual participants in the inquiry, is rather that these relationships can be managed in a positive-sum way in the shareholders' interest.

A new report should provoke a reappraisal of corporate relationships, argues John Plender

A balanced vision for tomorrow

An obvious case in point is the history of the Unipart group in winning significant mutual cost reduction henefits in

co-operation with its suppliers. Failure to manage such relationships may also carry heavy penalties. The report declares that a company communicating with the various stake-holder groups in ways "not rooted in consistent values will expose itself to lack of credibility, loss of confidence and damage to its reputation". No prizes for guessing which pri-vatised utility has paid the

highest public price for failing to grasp that point. As Professor Charles Handy of the London Business School has argued, the stakeholder analysis can be applied with equal force at country level. Against a hackground of severe US-Japan trade friction It tends to be forgotten that the export customers of many Jananese companies have been rewarded at the expense of their overworked employees and poorly remunerated shareholders. Japan's trade surplus is a reflection of a failure to strike a better halance between the different stakeholder interests, and has cost the Japanese policymaking elite legitimacy in the eyes of the electorate.

The strength of this analytical approach is that it appears to incorporate commonsense notions. Where the more extreme proponents of shareholder value appear to regard people and companies as commodities, the RSA report's emphasis on stakeholder relations highlights the organisational importance of qualities such as loyalty, trust and respect for the individual.

It argues that the British adversarial approach may be inaporopriate in a world where careful management of human capital is a vital component of husiness success. The overreliance on financial measures of performance is, it is suggested, potentially damaging to competitive performance. And the report accepts Professor John Kay's case, in The Foundations of Corporate Success, that continuity and



stability in relationships with employees, customers and suppliers are important factors in responding positively to

The inquiry found data to support these assertions. Bain & Company, the consultants, provided evidence of a close correlation between employee and customer loyalty. Statistical research on more than 3,000 husinesses in North America and Europe tended to show that intappible factors, including intellectual property, innovation and quality, were the strongest motors of competi-

Research by the UK Department of Trade and industry has found common features in

nine out of 10 of the most suc-

cessful companies. They are

led by visionaries, emphasise developing the creative potential of their people, know and exceed customers expectations, and constantly introduce new, differentiated products

and services. Many companies responded to this hy saying that "this is nothing new - we are doing it already". Yet the inquiry's findings revealed a hig gap between what business leaders claimed they regarded as important and the priorities they set for themselves and their companies in practice. Another hindrance to putting the inquiry's recommendations into practice is that developing criteria to measure the less tangihle factors that make for good business performance is a slow and difficult business.

Yet the one thing that the report claims is not an obstacle is the structure of company law. According to Philip Goldenberg, a partner at S.I. Berwin, one of the inquiry sponsors, many directors misunderstand their legal duties. They think their legal misunderstand their legal duties. They think that they have a legal obligation to shareholders which constrains their ability to manage state holder relationships to the

in reality, says Mr Golden-berg, the obligation to have regard to the interests of share-holders is not related to cur-rent shareholders but a manufacture. rent shareholders, but to the general body of shareholders' over time. It follows that directors ought to maximise the company's value on a sussimable basis. A failure to give due weight to important stake, holder relationships could thus constitute a fallure by the directors to discharge their duty properly

here is no great incompatibility here with the proponents of shareholder value merely a difference of emphasis and an important question about how shareholder value is measured. The implicit message is that it will not do to say that what is good for share holders is good for society unless shareholder value is defined in a way that reflects today's industrial and commercial reality as opposed to yes terday's. That reality is not being captured by the conventions of historic cost account ing which still dominate corporate reporting habits.

No doubt the RSA report will meet with plenty of criticism. It is eclectic, and makes no great claim to hreak new. ground. The authors have a penchant for the kind of cliche that some business executives seem to need to cheer them selves into action: "thinking win-win" and "making things happen". There is a hint of mercantilism in some of the language on competitiveness, Yet the inquiry remains a good example of constructive, independent consciousness raising, of a kind that is too rare in Britain. It will provoke many husinesspeople into thinking about their role afresh.

The RSA is a member of that select group of British institutions that no one would invent if they did not exist. But in the Tomorrow's Company inquiry, it has surely lived up to its name in encouraging manufactures and commerce. The mestion should not be so what, but why not?

LETTERS TO THE EDITOR

Number One Southwark Bridge, London SE1 9HL We are keen to encourage letters from readers around the world. Letters may be faxed to +44 171-873 5938 (please set fax to 'fine').

Translation may be available for letters written in the main international languages.

Japan welcomes car challenge in WTO

From Mr Ichiro Araki. Sir, I agree with Sir Roy Denman (Letters, June 2) in that the US should not go alone on a non-legal route in trying to settle the bilateral trade dispute over automobiles and auto parts. Instead, as Sir Roy correctly points out, the US should address the issue of what it calls "discrimination" against imports in the Japanese market in the World Trade Organisation. Sir Roy furthermore wants Europe to join this action. Japan would not mind that, because we are convinced that an objective solution will be found within the multilateral framework based on international rules particularly when third countries participate in the process. However, there is one point

Roy's opinion: that is, his reference to the 1982 General Agreement on Tariffs and Trade complaint filed by the European Commission. in his letter, Sir Roy seems to suggest that had the US supported the EC action then, the European view could have prevailed in the Gatt. I doubt if that would have been the case. I checked the contents of the EC complaint in 1982 and found that the Commission requested Japan, among other things, to "adopt a general policy objective of increasing the volume of its imports, and in particular manufactured goods' In my view, it is a European

version of the Clinton administration's "result-oriented" approach and the request for numerical targets or objective criteria, which run counter to the fundamental principle of Gatt/WTO rules. You cannot simply request a promise of the results in a "non-violation nullification and impairment case of the Gatt procedure. Did the Gatt contracting par-

ties accept such a request in 1982? Of course not. The EC was not able to pursue its complaint in the Gatt process to the end. No panel was established, and no rulings or recommendations were made. The US refusal to support the EC was a right decision, at least with regard to import tar-

If the US reverses its 1982 position and hrings a similar request in the coming WTO consultation, Japan would strongly oppose that. And even in the unlikely event of European support to such a request.

west of the US and in Aus-

There are also serious ques-

tions about the competence of

the private sector. The scrupu-

lously impartial reports by

Judge Stephen Tumim, the chief inspector of prisons, on

the first two private jails -Wolds and Blakenhurst - dem-

onstrate that the record to date

has been decidedly mixed: nei-ther as bad as some critics

feared, hut hy no means as

good as the proponents of pri-

When it first embarked upon

vatisation predicted.

the majority of the WTO members would most probably object to it. Setting up a numerical target for imports is nothing hut an attempt to manage trade through government intervention. The Gatt/ WTO aims at securing exactly the opposite - free flow of trade in goods and services on a global basis.

Japan would certainly welcome the US challenge in the WTO concerning the auto issue, but the US should not repeat the EC's mistake 13 years ago. Ichiro Araki,

deputy director, Trade Policy Planning Office, Japanese Government Ministry of International Trade and

Devolution takes far too long

that worries me about Sir

From Mrs Linda Macnish. Sir, Perhaps the writer of your editorial "Consent for devolution" (May 30) could enlighten the Scots, who have consisteotly over 70 years expressed their desire for devolution at the ballot box, as to how this "consent" is to he obtained? If the democratic process has failed, time and time again, as it has, how exactly do the Scots proceed? Perhaps they should take to the streets? Well, they've done that too, periodically.

There is an old (very old) Scottish joke which goes: Question: "What is the differ ence between devolution and evolution? Answer: "Devolution takes

longer."
I have only got one life and I'm not spending all of it waiting for devolution, as my

parents did. I vote for independence because that does not require the consent of anyone but the Scottish people, and I trust more and more Scots will come to the same conclusion. Linda Macnish

Roehaven, St Leonards Road. Moray IV36 ODW.

Accountability of private prisons

From Mr Stephen Shaw. Sir, Your report t"Privatisa-tion of prisons set to save money", June 2) and leader "Private prisons in perspec-

tive") on the UK government's prison privatisation programme presented it as the most normal thing in the world. In fact, privatised places of punishment raise profound issues of legitimacy and accountability. No other European country is engaged in prison privatisation - although there are a small number of private jails in the south and

From Mr Iain S. Robertson. Sir, As that "canny old cove with experience" referred to hy Lucy Kellaway in her analysis of Royal Bank of Scotland's

real Royal Bank people with whom our customers have of its directness.

However, one small point: age before beauty certainly, hut can I have my last 10 years prison privatisation, the gov-ernment claimed the policy was experimental it is there fore to be regretted that the contracts for the new prison: at Fazakerley and Bridgend are to be granted for 25 years. In effect, this guarantees privatised custody for the foresee ahle future - whatever the

results of the "experiment". Stephen Shaw. Prison Reform Trust, The Old Trading House, 15 Northburgh Street.

Canny, but not quite such an old cove

advertising ("Wheo age comes before beauty", June 5), I am glad that our new campaign was seen to stand out from the rest, not least because it uses

huilt longstanding relationships. Also pleasing was the conclusion that the ad should bring in new husiness, because

before retirement back ple A question of aged before time, perhaps? Iain S. Robertson managing director, corporate and institutional banking Royal Bank of Scotland 138-142 Holbo London ECIN 2TH. UK

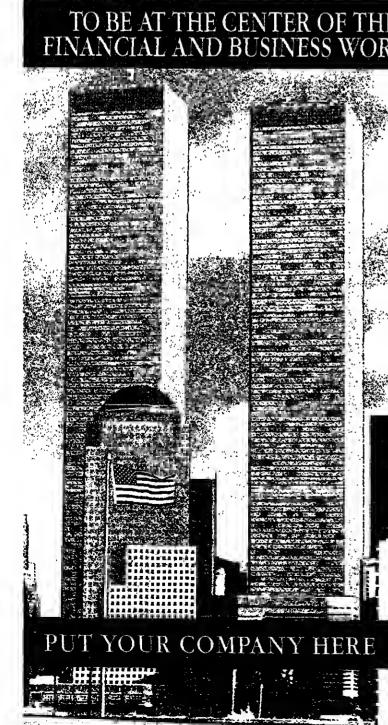
Take flight from horror of portable telephones

From Mr K.A. Willson. Sir. "Journey in space for passengers" (June 5) heralds the arrival of the ultimate travel horror, telephones at

Long expected but now here,

that one haven of peace and escape from the portable telephone. Are we to endure the interference, annoyance etc. of being surrounded by frantic conversations or can we also expect the travel requisition to read: "Non-smoking, nonthe aeroplane had remained

telephone, window seat K.A. Willson commercial manager Pineriale. Broomrigg Road.



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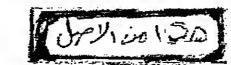
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Mr Lee leaps forward

This week's visit to the US by President Lee Teng-hin of Taiwan has sparked an inevitable onthurst of protest from Beijing. Yet fear of unsetting China would have been a bad reason for the Clinton iministration to refuse a visa to Mr Lee. Tha Beijing leadership may be used to a compliant legis-lature, but the US is different. President Clinton cannot ignore a resounding vote in favour of the visit by both houses of Congress. China is clearly concerned that

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A WARREN

even an unofficial visit to the US by Mr Lee will hoost Taiwan's mpaign for international recognition. And so it probably will, but only in a symbolic way. US officials will not meet Mr Lee. He has been discouraged from visiting New York, where the visit would attract more attention. As a sign that it wants other business to proceed as normal, the US has renewed China'a most-favourednation trading status. Unless China chooses otherwise, Mr Lee's visit need not inflict lasting damage on the bilateral relationship. Underlying the congressional vote on the visa, however, is a tide in US opinion which may make relations between the two countries more fraught. A Republican Congress is clearly reluctant to ignore tha fact that Taiwan'a record on human rights is better than China's. Taiwan's progress towards democracy, which is to culminate in presidential elections

this winter, has also been notice-Allowing Mr Lee to visit his old university seems a small gesture,

when Taiwan might arguably claim more tangible recognition in particular, membership of the World Trade Organisation, which Hong Kong will continue to enjoy after 1997, is being denied to Taiwan. It ranks only slightly behind China in the ranks of world exporters and has virtually fulfilled the necessary conditions for membership, but it must wait

until China does the same. Such difficulties will continue as long as China and Taiwan cannot resolve their own relationship. The outside world does not want to have to go on making these awkward choices indefinitely. Although the process will inevita bly be long, the best outcome would be a completely voluntary return hy Taiwan to the Chines fold. That is what China seems to want, but it must first make its

regime much more acceptable. There is a broader lesson too. It sometimes appears as though western leaders have taken fright at the prospect of China's emergence as an economic and political superpower even before the process has properly begun. The previous reluctance of the US to risk China's wrath by granting Mr Lee a visa can be seen in this light.

Yet if China is to become a dominant power, it will have to learn that there are limits to its ability to get its own way. That will not happen if the outside world kowtows to the wishes of a Chinese leadership that believes it has the right to dictate how others are to behave. If this means friction, so

Scott inquiry

Mr William Waldegrave should not be compelled to resign because of the leaking of a draft of the report of the Scott inquiry into the "arms to Iraq" affair. But if Lord Justice Scott stands by his provisional conclusions in his final report, the political stir will be even greater than that caused by the recent Nolan report into standards in public life.

"It is too soon to dabate the culpability of individual ministers uncover the failures which led to and civil servants for the failings which led to the Scott inquiry. Sir any senior ministers and officials Richard Scott sent out drafts of responsible. Of course the circumhis report to give those concerned stances need to be taken into a chance to comment on matters of fact and interpretation. It may be that the drafts were leaked by individuals in Whitehall anxious to weaken the inquiry by prema-ture publicity, but that is no reason to prejudge the final report.

Nor can there be any reasonable complaint about the procedure adopted by the inquiry, despite attempts by some former ministers to discredit the process in this way. The inquiry was established by the prime minister, who has notably refrained from criticism although himself under scrutiny. Sir Richard's conduct of the inquiry has been in keeping with previous investigations into executive failures, and the delay in publishing the report is fairly attrihuted to its complexity and the judge's evident desire to ensure that those concerned receive a fair

It is vital that the final report carries credibility, because of the importance of the issues at stake. Matrix Churchill may be the most celebrated case, yet about a dozen prosecutions in all were launched against company executives con cerned with the export of sensitive material to Iraq in the years run-ning up to the Gulf war. But for the late revelation of evidence about the role played by officials, ministers and government policy some of those charged would very likely have received prison terms.

this state of affairs and to expose responsible. Of course the circumpolitics of the Middle East and the need to protect hostages and others who might have been at risk. But official inquiries in Britain have rarely erred in making too little allowance for the pressures of government, and with the entire weight of Whitehall against him. Sir Richard is unlikely to veer in that direction.

The more serious concern is that the judge's report may concentrate too largely on the imme diate cases, and too little on the wider issues involved, in what circumptances are ministers instified in refusing to disclose policy shifts to Parliament and the public? Is the current regime for public interest immunity certificates satisfactory? What are the responsi-bilities of junior officials who have knowledge of wrongdoing or are themselves confronted with ethical dilemmas? The Whitehall village culture is to the dock, not just Mr Waldegrave and a few colleagues and officials.

Opening skies

The modest relaxation of restrictions on transatlantic air travel agreed this week by the UK and the US is scarcely a giant step forward for "open skies" liberalis-ation. However, it is indisputably a setback for Mr Neil Kinnock, the European transport commissioner, who has been vigorously asserting his claim to conduct on behalf of EU members all air services nego-

Mr Kinnock appears determined, nonetheless, to stand his ground. He is expected to threaten the UK with legal action of the kind he already plans against six other member states which have recently initialled bilateral agreements with the US. He contends such deals undermine the EU's solidarity and violate its airline deregulation policy.

The legal argument is for the courts to decide. But however they rule, the wisdom of Mr Kinnock's approach is debatable. Seeking to impose the Commission's will over the issue at this stage is not only likely to be resisted by EU member atates, more important, it risks diverting Brussels' energies and political capital into pursuing a second-order objective which

may be unattainable at present. By dealing as a bloc with the US, the EU might, as Mr Kinnock claims, be able to win bigger gains than its members can obtain individually. However, it would need far greater unity of purpose than it now possesses. For many of its larger members, the priority in transatlantic negotiations is to enhance the role of their bigger those closer to home.

William Co.

airports. For smaller ones, it is to expand their carriers' access to the US market. In these circumstances, trying to forge a common front which satisfies all concerned looka a thankless - perhaps

impossible – task. Underlying these divergences is EU governments' longstanding tendency to regard their flag airlines as projections of sovereign power, and air transport policy as a means to promote the interests of carriers, not of their customers Such attitudes will persist until Europe has a genuinely competitive airline market, ruled by efficiency instead of nationalism.

The planned full liberalisation of EU air transport in 1997 is an important step towards that goal. But the determined resistance by some member states to implementing earlier deregulation moves argues against taking its achievement for granted. It will never happen while EU governments are allowed to continue hailing lossmaking state airlines

out of bankruptcy. The EU's first priority should be to enforce real competition and effective disciplines on state aids in the airline industry. These are the issues on which Brussels genumely needs to assert its authority over member states: Once Mr Kinnock has shown he is up to that task, it may be appropriate for the EU to discuss his amhitions to play a bigger international role. Meanwhile, he should stop gazing wistfully at transatlantic skies and concentrate on

he timing of recessions is notoriously hard to predict. In July 1990, Mr Alan Greenspan, the Federal Reserve chairman, told Congress that "the likelihood of a near-term recession seems low". Statisticians subsequently marked that month as the end of

the business expansion of the 1980s. Nearly five years later, the economy again appears to be faltering. Speculation about a possible recession came to a head on Friday when the Labour Department reported a 101,000 decline in payroll employment last month. This contrasted adversely with Wall Street projections of an increase of between 150,000 and 200,000 jobs and followed ominously weak figures for factory orders and for the Purchas-ing Managers index - a reliable guide to sentiment in manufacturing industry.

The sharpness of the decline in economic activity since April is unsettling many US economists. But most remain fairly confident that the economy will rebound before the end of the year. The bond market, however, seems far more pessimistic. The structure of yields implies a half-point cut in the federal funds rate to 5.5 per cent within a matter of weeks and subsequent cuts to perhaps 4.5 per cent within four or five months.

It would be surprising if the Fed rushed to validate these bearish interest rate projections because the economic dislocation so far experienced is roughly what might have been expected following its decision last year to tighten monetary pol-icy. The Fed raised short-term interest rates from 3 per cent to 6 per cent during the year to Fehruary because it wanted to cool the economy and reduce upward pressure on inflation.

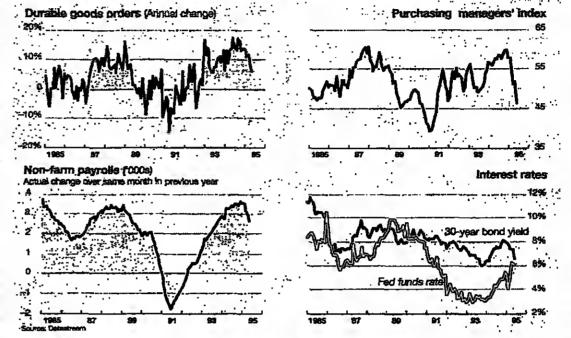
The rate increases first reduced the growth of consumer spending, especially on interest-rate sensitive items such as cars, bomes and durable goods. This meant that production ran ahead of salea growth, creating a large backlog of inventories, or stocks of unsold goods. Early this year companies began to cut production in order to reduce these stocks. As production fell, demand for labour also declined, causing higher unemployment. The softness in recent data may

thus reflect nothing more serious than a temporary "inventory correction" – a phenomenon familiar from past business cycles. Such a midcycle correction might involve a couple of quarters of very sluggish growth at an annual rate of, say. between 1 per cent and 2 per cent. It could even mean a brief contraction of activity: many past business cycles have seen the odd negative quarter following a bout of Fed tightening. But once the inevitably bumpy transition to slower growth

Loud ring on the US alarm bells

Some figures suggest another recession but others point to renewed economic growth, says Michael Prowse

US economy: will history repeat itself?



is completed, production and nployment should rebound.

The problem for the Fed is that the early stages of a real recession look similar to an inventory correction: both involve cuts in production in interest-rate sensitive sectors. The difference lies mainly in consumer behaviour. The Fed will be closely watching figures for retail sales: if these weaken further in May and June, the risk of a recession would rise sharply - because lower sales would almost certainly be followed by another round of production cuts. The Fed would then lower interest rates in order to ward off a downward spiral.

So far, bowever, the signs are moderately encouraging. Figures for final sales in the first quarter Were revised up sharply last week to show growth at an annual rate of 2.5 per cent, rather than 1.8 per cent. Second quarter data are patchy. Car sales plummeted in April, but rebounded in May. Department store sales seem to be doing reasonably well. Consumer spending may also have been artificially depressed between February and April by unusually low tax refunds and other fiscal distortions. Consumer confidence indices also

suggest that fears of recession are more prevalent on Wall Street than Main Street. Confidence fell a little last month but remained at levels that normally signify solid economic growth. There are other reasons why the

Fed may want to wait hefore cutting rates. Core consumer prices rose at an annual rate of more than 4 per cent in the first four months of this year, against about 2.7 per cent last year. Fed policymakers have indicated they would be willing to cut interest rates while inflation was rising if broader economic trends - such as an imminent recession - indicated the rise would be short-lived. But given the uncertain economic outlook today, they will probably require more evidence that underlying inflationary pressures are easing before loosening

The monetary authorities will also be acutely conscious that many

powerful expansionary forces are already at work. The Fed may not have cut the federal funds rate the cost of overnight loans for banks which it controls directly by buying and selling securities. But this short-term rate forms only a part - some would say a minor part - of the monetary transmission mechanism. On the assumption that economic growth is slowing substantially, the bond and currency markets have already wrought a dramatic de facto loosening of US

monetary policy. Yields on bonds of most maturities are now below 6 per cent below the federal funds rate. The yield on the benchmark 30-year Treasury bond has fallen to about 6.5 per cent, having soared above 8 per cent last year. Mortgage rates are back below 8 per cent, having risen to about 9.5 per cent. The dollar - another important channel for monetary policy - has depreciated by about 9 per cent in tradeweighted terms from already depressed levels last year.

The effects of such rate changes

are not immediate. But just as higher long-term yields in 1994 caused this year's slowdown, so lower yields today should lift the economy later this year and next year. The interest-rate sensitive sectors that have been hardest hit in recent months, such as cars, housing and consumer durables, should benefit disproportionately. Lower bond yields may also support capital spending by allowing companies to borrow long term at attractive rates. The fall in the dollar, meanwhile, is likely to boost foreign demand for US products: many economists are already forecasting a sharp reduction in the US trade deficit later this year.

There are other grounds for optimism. The "wealth effect" from higher share prices is disputed, but the scale of this year'a rally is large enough to have some positive effect on consumer spending. Tentative signs that Mexico's financial crisis is easing should also support economic activity in coming months. Nobody is sure quite how big an impact Mexico's economic free fall bad on the US, but it certainly exacerbated the inventory shakeout caused by tighter monetary pol-

n apparent absence of many classic signs of impending recession should also comfort the Fed. Consumer debt has risen but corporate and housebold balance sheets are generally in good shape. Although the bond and share markets look frothy, there is no evidence of speculative excesses in real estate markets. Companies still appear to be taking a long view: there are few signs yet of a slowdown in capital spending.

The balance of evidence thus still points to a mid-cycle correction rather than a full-blown recession. And although news reports understandably focus on job losses, the Fed is aware that the economy is still uncomfortably close to its resource limits: the jobless rate is 5.7 per cent, probably still below the rate consistent with stable inflation; and the industrial capacity utilisation rate is high at about 84 per

There is certainly a danger that the economy could spiral down into recession. But if consumer spending holds up - an important proviso there is also a risk of a strongerthan-expected rebound once inventories reach desired levels. Given the uncertainties the Fed seems likely to wait a mouth or two before considering a rate cut. This, at any rate, would be the prudent course for an institution whose primary responsibility is price stability. in the meantime markets, by lowering the rates they control, are fighting recession in their own inimitable

Why Britain should opt out of Emu



the dark. Never before have countries with indepen-PERSONAL dent monetary policies and long-standing central

VIEW banks planned to establish a common central bank, and to give to that bank exclusive control both over monetary policy and the issue of currency.

The Institute of Directors will tomorrow publish a detailed assessment of the likely implications for the British economy of Emu whether the IIK onts in or cots out Our conclusion is that, on balance, it will not be in the economic interests of the UK to take part in a single European currency for the foreseeable future.

The UK economy is structurally different from those of other countries likely to take part. Our trade pattern is different - we trade much more outside the EU than other likely participants, who trade much more with each other. Further, the UK economy responds differently to changes in toterest rates from the

This means that for the UK the costs of a single currency will be higher - and the benefits lower than for these other countries.

The main cost of a single currency would be relinquishing control over monetary policy. This is unlikely to pose difficulties for the so-called EU core" of Germany, France, the Netherlands, Belgium, Luxembourg and Austria - the countries most likely to be tha first to move towards a single currency. Since their economies are similar and tend to move together, the appropriate monetary policy is also likely to be similar.

This is not the case for the UK economy. It does not move in step with these countries and is structurally different in the ways outlined above. The appropriate stance of monetary policy will therefore often be different in the UK - yet participation in Emu would impose a European monetary policy. The costs to the UK of being sub-

ject to an inappropriate monetary policy could be very large indeed. If it is too tight, there will be the costs of lost output and employment; if it

European monetary economies of continental Europe. is too lax, there will be the costs of inflation

It is not just that the appropriate monetary policy is likely to be different in the UK: changes in mone tary policy will affect the UK differently from other European countries. So, even if inflationary pressures in the UK and other participating countries were the same before a change in monetary policy, they would not be afterwards.

The benefits of low inflation could still be achieved by pursuing a sensible domestic monetary policy

Consumers and businesses in the UK have a much greater reliance on variable rate debt than their German or French counterparts because of the nature of our housing and financial markets. The immediate effect on incomes and spending of a given change in interest rates is therefore greater in the UK than in these countries.

reduce the costs and uncertainty associated with currency exchanges in international trade.

However, less than half of total UK trade is with other EU countries - even including the three new EU members. If one restricts tha analysis to the EU "core", this proportion is reduced to just 30 per cent. So, if the UK joined this first group of countries in Emu, 70 per cent of our trade would still be subject to a currency exchange.

There is no evidence that this 30 per cent share would increase significantly if exchange rate uncertainty among the countries concerned were eliminated. Various studies bave failed to find any rohuat relationship hetween exchange rate variability and trade.

A single currency would give rise to additional costs in the shape of the fiscal transfers likely to be demanded by countries experiencing difficulties as a result of giving up their domestic monetary policy. The consequence of this would be an additional layer of tax on what is already an over-taxed Europe. This would exacerbate existing problems

A single currency would clearly of high unemployment and poor

What would bappen if the UK exercised its opt-out and did not take part in Emu?

The benefits of low inflation could still be achieved by pursuing a sensible and credible domestic monetary policy. Furthermore, the role of the City of London as a world financial centre and the UK's success in attracting inward investment could be more easily maintained. This is because the UK would be free to pursue policies of light regulation and low taxation in which the City could thrive, and to provide the stable macroeconomic climate and flexible labour markets sought by foreign investors.

A single currency is for ever. The burden of proof must be to show, beyond all reasonable doubt, that it is in our economic interest to take part. The evidence shows that, on balance, it would be in our economic interests not to do so.

Tim Melville-Ross

The author is director-general of the Institute of Directors.

OBSERVER

Jerusalem jive for Kohl

■ Germany's chancellor Helmut Kohl probably didn't have much time to listen to the radio yesterday while in Israel. Just as well, as for some inexplicable reason the state-owned radio station broadcast a medley of songs favoured by the allies in the second world war. Tunes such as Roll Out the

Barrel, The White Cliffs of Dover, Colonel Bogie and Hang Out the Washing on the Siegfried Line, along with some well-known hits of the Red Army choir, filled the ether. Aliza Disatnik, editor of the golden oldies programme, saw nothing tactless about her choice of music. Was she making a point about Kohl's visit? "I hadn't even thought about it," she said.

Water off a duck's back; during Kohl's visit, Volkswagen announced \$100m investment in a joint venture with an Israeli company to make magnesium parts for cars. Maybe Disatnik will now think about playing that old Abba favourite -Money money money.

Georgian kicks

After four years of war, food shortages and economic slump, it's a small miracle that Georgia's national soccer squad can field 11 players at all – let alone a team that was capable, during their

first-leg encounter last November, of trouncing Wales 5-0. Four of the players appearing in Cardiff today were among the 250,000 or so Georgians forced from their homes in the republic's north-west, after Georgia lost a war against the Abkhaz separatists in August 1993.

Shortages of power, heating oil. and water, along with rampaging armed gangs, have made Georgia'a soccer season somewhat difficult. Though Dynamo Tbilisi, which inflicted a famous defeat on Liverpool in 1981, is still struggling on. And despite their tender average age - about 23 - most of the team members have established successful careers abroad. Asked to name Georgian head of

state Eduard Shevardnadze's bravest moment, most Georgians think not of the Abkhazian war during which he had several close shaves - but of the time 15 years ago when he walked, unarmed, on to the pitch of Tbilisi football stadium, which had been invaded by a mob of enraged fans seeking the Russian referee's blood. Shevardnadze managed to cool

A Georgian indignantly denies his country's fans are particularly fanatical - the English are far worse, he insists.

Very small Mac

■ Where's the beef? Andrew Taylor, 37, chief operating officer of

McDonald's Restaurants in the UK, has been appointed to the main board of McDonald's Corporation. For a graduate trainee who only started in 1979, Taylor's rise to the top of a company with a market capitalisation of \$26bn looks impressive.

McDonald's issued a press releas esterday celebrating the fact that that he is the first Briton to make it on to the main board. What it fails to point out is that Taylor has joined the board as an advisory director, for a one-year term, and in a non-voting capacity. When his time is up someone else will probably be given a go.
If a Brit ever gets a permanent

eat on the McDonald's board Observer will eat not the cheeseburger - too awful to contemplate - but the cardboard box it comes in.

It's never too Luvt ■ Louis Luyt, outspoken president

of the South African Rugby Football Union, may not be entirely upset at the rows of empty seats at the world rugby cup venues.

Shortly before the competition started, he criticised the directors of Rugby World Cup Limited, the body ultimately responsible for organising the event. Almost half a million tickets had unexpectedly returned to South Africa, barely a week before the tournament started

and Luyt was livid. "Just as we thought, the tournament has been seriously over-priced. . . not nearly as many people are coming from overseas as RWC expected," complained the 62-year-old Luyt, who in his youth captained the Orange Free State provincial rugby team. "Rugby world cup have creamed off the best tickets and left us to try to sell the rest. They did the same thing in 1991." he added.

Luyt, a businessman who made his fortune from fertiliser, is renowned in South Africa for not mincing his words. Apparently he went on to call for the resignation of the RWC directors and for the restructuring of the RWC itself. Or did he? Following a pained

response from the RWC, Luyt then issued a statement apparently denying much of what he had said. Asked yesterday whether his original remarks about the RWC represented his true feelings. Luvt's office said that any comment must now await the end of the tournament. Someone has some explaining to do.

Small shareout

■ Quote of the week, from French political scientist Dominique Moïsi. speaking at London's Royal Institute of International Affairs yesterday: "The trouble with Europe is that we are all willing to share what we don't have. The French are willing to share money, and the Germans are willing to share foreign policy."

Financial Times

100 years ago French cable companies Strengous efforts are being made

by the French Colonial Party to force the Government to introduce an extensive system of submarine cables in order to avoid having to depend upon the English lines in case of war, a necessity which is declared to be a great national danger. It is now stated that considerable opposition will be offered before the Budget Committee to the renewal of the subventions paid to the English cable companies. of which the principal are the Spanish Submarine Telegraph Company (cable to Senegal), the Eastern Extension Company (Saigon and Tonquin), the Africa Direct Telegraph Company (West Coast of Africa), and the Eastern Telegraph Company (Obock to Berlin). It is contended that this money should be devoted to French cable companies...

50 years ago Round the markets

Stock Exchange markets will be "political" for the next two or. three weeks. The general opinion in the House [the exchange] is that price fluctuations will be of the switchback order. The speech of Mr Attlee (Labour party leader) on Tuesday night led to a weakening of prices around the House.

Wednesday June 7 1995



Japan admits bad debts problem totals \$469bn

One of Japan's most senior financial officials has acknowledged that the full scale of the country's bad debt problem is far worse than previously thought. Mr Yosbimasa Nishimura, director-general of the finance ministry's banking bureau, yesterday said total problem loans at

the country's banks amounted to about Y40,000bn (\$469bn). This is equivalent to almost 10 per cent of Japan's gross domes-

The disclosure came amid growing concern that the government's long-awaited measures to reinvigorate the troubled banking sector are unlikely to be suffi-

cient to resolve the problem.

Mr Nishimura told a parliamentary budget committee that the scale of the crisis meant a publicly funded emergency rescue of a troubled bank or two was increasingly probable. "It may be necessary in order to maintain financial order," be

But Mr Masayoshi Takemura. finance minister, was more circumspect about such a highly controversial use of public

"I would like to consider this issue cautiously in light of the off their had assets.

direction of public opinion and the course of parliamentary debate." he told the same com-

The figure of Y40,000bn is the total of all outstanding problem loans, for some of which banks have already made provision.

The overall cost to the banks is therefore likely to be lower than that figure, but will still be substantial, probably higher than

Surplus falls for second ...Page 4 month

the \$100bn cost of the rescue of the US savings and loans industry over the past decade.

The banks' bad loans are the

result of imprudent lending on a grand scale in the 1980s, a period of surging asset prices, mostly to

the property sector. When property prices fell in the early 1990s, banks were left with large volumes of non-performing loans, the scale of which they only began to disclose two

Since land prices are still falling, and economic recovery remains elusive, many institutions are gradually slipping below the solvency level, despite stronger recent efforts to write

risk, including some of the smaller "city" or commercial banks, trust banks and at least

one long-term credit bank.

But the greatest immediate threat is to housing loan companies, some regional banks and smaller credit associations, many of which are now near collapse. The scope for a US-style bail-

out has been greatly limited by public opposition earlier this year to a Bank of Japan-led rescue of two small credit associa-

It subsequently emerged that the collapse of the Tokyo Kyowa and Anzen credit unions had been brought about by alleged improprieties on the part of the managements of the two compa-

The incident hardened the electorate's suspicions that most banks' problems were the result of their own incompetence or alleged venality and should not

be resolved by public funds.
The fragility of the financial system, which is threatening to snuff out Japan's already weak economic recovery, demands action of some sort from the

authorities From this financial year, banks will be required to disclose the scale of restructured loans.

overseas to aid energy industry

President Boris Yeltsin yesterday signalled an increasing Russian openness to foreign investment m its asset-rich but crisis-prone

energy sector. Russian suggestions about encouraging foreign participation in its energy sector coincide with an increase in official criticism of the country's domestic

Mr Yeltsin, addressing an international energy conference in Moscow, said European energy problems could be solved "only

Mr Anders Aslund, a former economic adviser to the Russian government, said yesterday: "Mr Yeltsin appears to be worried about the performance of the energy sector and the best way of squeezing it is by liberalising the industry and allowing in foreign

energy ministar who also addressed the conference, said the main challenge confronting Russia's energy industry would be to try to halt the fall in oil output. Even if drilling work dou-bled, Mr Shafranik said, oil production could still be expected to drop from last year's 318m tonnes to 270m-310m tonnes by the end

result of cash shortages and its pipeline infrastructure is crumbling badly. Refinerles are working at less than 55 per cent of capacity. Industry analysts estimate it could take at least \$15bn

industry was faring better. Annual production might rise from the current 607bn cubic metres a year to between 660bn-740bn cubic metres by the year 2000, he said.

At its recent annual meeting, Gazprom indicated It was in no hurry to sell shares at low prices and was initially targeting for-

Bureaucratic delays, an uncertain fiscal and legal regime, and changeable tariffs have frustrated many foreign investments in Russia's energy sector. But parliament is considering important production-sharing legislation which might clear the way for foreign investment projects in

Nafta ministers meet to discuss Chile's admission

By Bernard Simon in Toronto and Nancy Dunne in Washington

Trade ministers from the US. Canada and Mexico meet today for the start of negotiations on Chile's accession to the North American Free Trade Agreement.

Chile could join Nafta as early as January 1 1996 if the talks go smoothly, but the negotiations are clouded by demands in the US Congress that some Nafta provisions be redrawn to impose new conditions on US-Mexico economic relations following Mexico's financial crisis

Canada and Mexico want to leave the 17-montb-old Nafta agreement virtually intact, with only technical modifications such pacts on labour and the environ-

Republican leaders in Congress have indicated that they will not grant the Clinton administration "fast-track" negotiating authority for Chile's accession unless the labour and environment side deals are excluded.

One compromise being mooted is that the trade element of an expanded Nafta would be subject to fast-track approval. Fast-track authority enables the US administration to negotiate a full packwithout amendment.

new voting procedures in side-

Today's meeting will review the last six months' preparatory work and will be followed by the as a possible name change and annual ministerial meeting of the

On the agenda are a stalled proposal for tariff reductions among the US, Canada and Mexico, a code of conduct for members of dispute settlement

panels, and trade disputes. Mr Mickey Kantor, the US trade representative, is expected to take up a complaint by UPS, the US courier service, against Mexican restrictions on the size of vehicles allowed to deliver small parcels.

He is also likely to reiterate Washington's concerns about ment" system, which protects local producers of eggs, poultry and milk. Washington and Ottawa are also embroiled in a dispute over sugar.

GM plans pan-European works councils

Continued from Page 1

had invited union representatives at its production plants in Germany, the UK, Austria, Belgium, Norway, Portugal, Sweden and Spain to talks in Brussels on the formation of an "employee forum" which will be involved in an "exchange of views on the development of the business and the competitive challenges facing" GM Europe.

GM's decision to include employees at Vauxhall, its UK subsidiary, in the works council

ernment's opt-out from the Maas-tricht treaty's social chapter. Under that exemption, companies are not required to extend a

works council to UK employees. Mr Tony Woodley, the TGWU union national secretary for the UK car industry, said GM's deci-sion had "exposed the dishonesty and stupidity of the UK government's refusal to legislate for works councils".

Mr Bruce Warman, Vauxhall's personnel director, said there had been a "long discussion" in GM about whether to exclude the

the UK's opt-out. He said man-agement had decided not to do so but reserved the right of going ahead without UK representation if agreement could not be

reached with British unions. The proposed forum is seen by the company as a "complement" to existing practices at a transnational level.

GM plans later to establish consultation forums for employees in Europe who work in its components division Delphi, EDS computer business, Delco Electronics, Hughes aircraft missile facility and its finance group.

Moscow may look

ish Gas, Elf Aquitaine, Ruhrgas, Shell, Norsk Hydro and Wintershalle. Several are believed to be interested in buying a stake in the giant Gazprom gas producer, which is aiming to sell 9 per cent of its shares to international

of the century.

Mr Shafranik suggested the gas

eign energy companies rather than institutional investors.

A world concern. Page 2

comes as a blow to the UK gov-11,000 UK employees in line with

Europe today Colder air and rainy periods will be drawn into the UK, north-west France and the Benelux as a small decression crosses the North Sea. towards southern Norway. In the colder air, cloud will be interspersed with sunny spells

and there will be occasional showers. Germany, northern France and the northern Alps will be mostly cloudy. The Mediterranean and southern Alps will have a lot of sun but Portugal and eastern Spain will be partly to mostly cloudy with rain, occasionally with thunder. The Balkans will have broken cloud mixed with showers and a few thunder showers. Southern Scandinavia will be cloudy

Five-day forecast

A depression near southern Norway will cause pressure area will move west of the UK resulting in more stable conditions over the British isles. The Benelux will remain unsettled as colder air crosses central Europe. Ralny periods will spread east. The central Mediterranean is expected to have rain or showers during the weekend. However, the Balkans should turn dry this weekend after a



FT WEATHER GUIDE

through joint efforts".

Western companies invited to the meeting included Total, Brit-

Mr Yuri Shafranik, the fuel and

About 27 per cent of Russia's oil wells are out of operation as a

the Timan-Pechora basin in Russia's Arctic circle and Sakhalin island in the far east.

THE LEX COLUMN Beer money

Labatt has attracted two bids in under three weeks. Yet the extent of its attraction looks questionable. Of course, the private Belgian brewer Interbrew, like earlier bidder Onex. plans to sell Labatt's bizarre mix of broadcasting and entertainment busi-nesses. This could knock around C\$800m off the C\$2.7bn bid price. Additional funds could come from selling around 550 British pubs. But it is hard

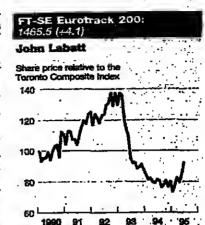
to equate the remaining businesses with their implied valuation. Labatt accounts for 44 per cent of Canadian beer sales, and has steadily increased its share of a stagnant market. But there is a growing threat of US competition within what has been a well protected market. Its margins, possibly the highest of any sizeable brewer, must be under threat. Its 22 per cent stake in Mexico's larges brewer, Femsa Cerveza, was acquired just before the peso crisis; the com-pany faces intense domestic competition. Meanwhile, Labatt has made limited inroads into the European market. In the circumstances, it is hardly surprising that after some time on the auction block no other large

brewer bid. the opportunity to sell its vast array of premium beers into a growing segment of the North American market. Labatt offers both brewing and distribution. Interbrew can do more with the Labatt and Rolling Rock brands in Europe. In addition, as a private company, Interbrew can take a longerterm view on investments. But its three family shareholders could require a lot of patience.

French banking

The idea of merging BNP, UAP and Suez to create a huge tricolor-waving financial conglomerate is typically French. Fortunately it now seems to have been blocked, but it could resurface in some other form. Size for size's sake does not create strength: Crédit Lyonnais' attempts to create a French rival to Deutsche Bank ended in catastrophe. Moreover, none of the three groups is a leader in its main markets: tying three stones together noes not make them float any better.

There is some theoretical appeal in breaking up Suez, if that is what BNP was driving at. Suez is an historical accident, a rag-bag of directionless businesses containing few synergies. If a break-up released value, shareholdstock has underperformed the CAC-40



by 60 per cent. BNP would also be able to keep Banque IndoSuez, allowing it to catch up with Société Générale in investment banking. But disposing of Suez's other assets would not be easy, Crédit Lyonnais, which is trying to sell similar businesses, has discovered this is a buyers' market. Besides, the tax implications of such sales might prevent much of the value reaching

shareholders. If nothing else, the aborted merger plan has highlighted Suez's strategic predicament. The company is sitting on about FFr3bn of cash. The management views the option of distributing cash to investors as lacking in imagination. But dullness is not vice. Shareholders have suffered enough from Suez's strategy of frittering money on minority holdings in unrelated busi-

UK electricity

Panic is gripping Britain's utilities. Political criticism of high profits and rising executive salaries is forcing them to sue for peace. The latest peace offering comes from electricity group Seeboard. It has followed the practice. pioneered by North West Water, of splitting "unforeseen cost savings" between customers and shareholders. Unlike North West, which went for a notional 50:50 split, Seeboard is giving customers two-thirds of the goodies.

If this manoenvre removes the threat of tougher action by the regulator, it will be in shareholders' interests. As in North West's case, the key is not so much the special dividend as the other goodles in prospect. See-23 per cent last year, has scope to

With Suez grow further as dividend cover is reduced; there is the num or source buybacks to gear up its balance sheet to more appropriate levels; and investors will receive Seeboard's shares in the National Grid when it is floated Viewing the package as a whole shareholders do better than the rheto-

Weand UAP N

garage and the

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ric of a 33:67 split suggests: However, all this hinges on the assumption that Seeboard can sue for peace on such terms. The risk is that Mr Stephen Littlechild, the regulator will see Seeboard's offer as an opening bid and press even harder. He might for example, argue that excess profits are higher than Seeboard's £30m of unforeseen cost savings or insist on customers receiving an even bigger share. There is nothing magic about Saeboard's maths...

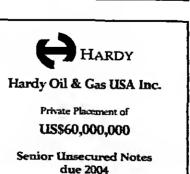
UK lottery

Britain's National Lottery gave out around £562m of prize money in the year ended March, but the largest individual beneficiary only emerged yesterday. Camelot - the operator, owned by companies including Racal and Cadbury Schweppes - was sufficiently embarrassed by its luck to change accounting policies. Racal's own accountants calculated Camelot's 1994-1995 pre-tax profits at £37.3m. But bashful Camelot opted to write off last year's £30m start-up costs, declaring only £10.8m profit. The extent of its fortune should emerge this year, with likely profits of around \$20m.

There is no reason why Camelot. should not be rewarded thus. It won the licence in a competitive tender, exceeded its sales targets and provided £90m additional funding for "good causes". Nonetheless, the tide of public resentment that has swept over utilities is now reaching Camelot, raising the spectre of windfall taxes under a Labour government. But at least Camelot has the short term prospect of putting more games and services through its expanding sales network And there is the potential for operating overseas lotteries.

The more immediate corporate los ers are other leisure companies. With over £100m a week being absorbed by the lottery, bingo, pools and betting businesses are all starting to see dwindling revenues. They will eventually benefit. Having encouraged one form of gambling, the government has felt obliged to speed up deregulation within the entire gaming industry. expense of today's profits.

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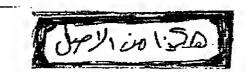
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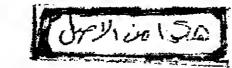
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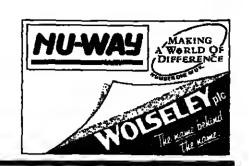








Wednesday June 7 1995



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BNP and UAP may link with Suez

Banque Nationale de Paris and Union des Assurances de Paris, two of France's largest finan-cial groups, are considering a closer relationship with Suez, the country's largest financial and industrial holding company. Page 16

Firmish forestry faces shake-up Finland, the world's second-largest forestry sector exporter after Canada, has taken the opportunity of the flow of profits that high paper prices are providing to restructure the industry. Page 16

Bumper year for US farm machinery The US farm machinery industry is having one of its strongest years. After staggering through the farm recession of the early 1980s, the outlook for the equipment companies is bullish. Page 19

S Korean group declares global ambition Pohang Iron and Steel (Posco) of South Korea expects to overtake Nippon Steel to become the world's largest steelmaker when its expansion plan is completed in 1998. Page 20

Profit-taking checks Bovespa index

Brazil Boyespa ('000)

São Paulo fell 2.3 per cent in light midday trading on profit-taking. The Bovespa index was 925 lower at 29,703 at 1 pm in turnover of R\$155.8m (\$171.4m). Analysts noted the market had rallied 9 per cent over the previous four sessions as optimism grew over congressional votes to break the telecommunications and oil monop-. olies. Back Page

English utility voluntarily cuts prices Seeboard, the power distributor in the south-east of England, is the first UK regional electricity com-pany since privatisation four years ago to implement price cuts which had not been imposed through the regulatory regime. Page 21

UK lottery group claims top spot Camelot, operators of the UK's National Lottery, claims it is on the way to being the world's most efficient lottery in terms of operating costs and returns to government. Page 21

Forecast hits De La Rue shares De La Rue, the UK security printing group, posted a 13 per cent increase in annual pre-tax profits to £146.6m (\$233m). But its shares fell after a forecast of modest earnings growth this year. Page 22

Warning removes gloss from Meyer Int. A warning on lower building materials sales and falling timber prices took the gloss off a 24 per cent rise in profits for Meyer International. Page 22

Allied Colloids shrugs off price rises Higher raw material prices did not dent profit margins or sales at Allied Colloids. The UK speciality chemicals group pre-tax profits rose 10 per cent to £50.3m (\$80m). Page 22

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Allied Colloids	22	Korea Telecom	
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Market Statistics

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Chief price changes yesterday

COMPANIES & MARKETS

OTHE FINANCIAL TIMES LIMITED 1995

Lotus shares surge above IBM offer

By Louise Kehoe in San Francisco

IBM yesterday launched its hostile \$3.3hn tender offer for shares of Lotus Development as investors speculated that alternative bids might emerge for the computer software company.

Lotus stock opened yesterday at \$62% compared with IBM's \$60 a share offer and nearly double Lotus's closing price on Friday.

The premium to the bid price was also explained as being due to the possibility of a negotiated settlement with IBM at a higher

In papers filed with the Securities and Exchange Commission, IBM said that it was continuing

Nnclear Electric, the UK

state-owned power ntility,

company earned £1.2bn (\$1.9m)

in the year to March 31 1995, np

53 per cent on the year before.

This was achieved in spite of

lower electricity prices and

lengthy sbntdowns at two

nue losses were more than offset

by gains in efficiency and tighter

After tax, Nuclear Electric

earned £1.03bn, nearly three

times last year's £361m. Mr John Reynolds, ntilitles

analyst at James Capel, said the

result was promising and

Nuclear Electric's profits could

show further increases before

privatisation in the summer of

1996. "Nuclear is going to be cost competitive," he said. "It does have unique risks attached to it.

but investors will be capable of

The key to the group's

improved result was a 24 per

cent cut in operating costs, and

One big factor was its recent

negotiation of a long-term con-

tract with state-owned British Nuclear Fuels (BNFL) to repro-

cess spent fuel. The fixed price deal enabled NE to claw back

sing these."

£829m of provisions.

ductivity.

cost controls.

nuclear power stations. But reve-

Resources Editor

Hostile \$3.3bn bid for software group sparks talk of counter offer or revised terms from Big Blue the companies "have dealt only with marketing and development collaboration".

The bostile bid may have been

to seek a merger agreement with

IBM said it "intends to have ongoing contacts and negotia-tions" with Lotus. A negotiated deal might include cash and stock or a combination of both.

Possible alternative bidders for Lotus include Oracle, the leading database software company, AT&T, the telecommunications group, or Novell, the leading supplier of computer networking software. The companies declined

Mr David Wu, an analyst at S.G. Warburg, believes IBM may sweeten its bid. "We do not According to IBM's filings, sevbelieve there will be higher bids from rumoured third parties," be

IBM's SEC filings also shed light on events leading up to the bid. Mr Lou Gerstner, IBM chairman and chief executive, said on Monday that IBM had been 'trying to get Lotus to consider such a transaction for over five months" but was rebuffed. Mr Jim Manzi, Lotus chairman

and chief executive, said that March 27, discussions between

prompted, industry analysts said,

between the companies. Since

The reign in Spain

by two factors: slowing sales of Lotus' Notes, the primary target of IBM's interest in Lotus, and difficulties in IBM's own efforts eral meetings took place between Mr John Thompson, IBM senior vice-president, and Mr Manzi, to develop similar software. The Lotus Notes product, and IBM's "Intelligent Communicabeginning last January. Although Mr Thompson "inquired as to Mr tions" software development proj-Manzi's interest in having IBM ect, are "groupware" aimed at

acquire the company [Lotus] as early as January 31, the primary enabling teams of people to work collaboratively through personal topic of these discussions appears computer networks. to have been the possibility of Intelligent Communications collaborative agreements was originally scheduled for launch last year, but has been

Record year | Acquisition of Galerias Preciados will establish dominant Spanish retail chain El Corte Inglés for Nuclear Electric is tipped to buy By David Lascelles,

troubled rival

strengthened prospects for a suc-cessful privatisation by announc-ing record profits yesterday.

At the operating level, the By Tom Burns in Madrid

El Corte Ingles, the retail group with department stores as familiar as landmarks in many Spanish towns, is today expected to acquire its former rival.

The Spanish government is likely to announce that the highly profitable retail chain is to be the new owner of Galerias Preciados. The government stepped in to help salvage Galerias Preciados when it applied for protection from creditors at the end of last year.

On paper, the deal establishes an impregnable domestic presence for El Corte Inglés, a company that reported profits of Pta32bn (\$264m) last year on turnover of Pta951.8bn and is considered one of the biggest private businesses in Spain.

However, the acquisition will provide a big challenge for a com-

pany that has nurtured its own culture according to the guidelines laid down more than 60 years ago by its founder. Mr dants still control the group. El Corte Inglés bas grown

steadily, financing its growth, to its present strength of 32 large stores, 12 of which are out-oftown bypermarkets, and 48,000 employees.

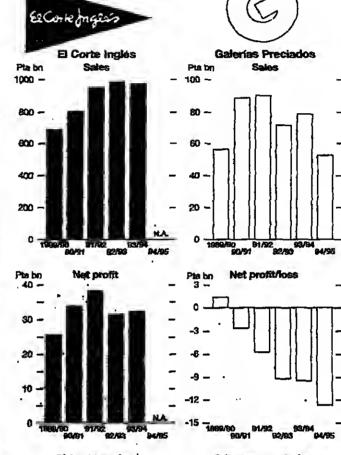
Galerias Preciados has drifted The result includes more than under a succession of different owners for the past 25 years, including the UK's Mountleigh £1.2bn in proceeds from the nuclear levy on electricity bills, without which Nuclear Electric group in the 1980s, and its 30 stores have reported growing would have made a loss of £33m. losses over the past five years.

El Corte Inglés has put in a Pta30hn bid to acquire Galerias and has undertaken to renew contracts for 5,200 of its 7,300 employees. The chief rival bidder, local businessman Mr José Luis Dominguez, dropped out of the race yesterday saying nobody could match El Corte Inglés' offer. The two other bidders, one of which is a consortium that includes Galerias suppliers, have entered lower bids and, unlike El Corte Inglés, have requested state credits to aid the acquisi-

At least one of the remaining bidders has indicated that it could refer the expected acquisition of Galerias by El Corte Inglés to Madrid's anti-monopoly tribunal but legal sources said a ruling against the dominant group was extremely doubtful particularly as no public money was attached to its bid.

"El Corte Inglés offers the only solution," said a Madrid merchant banker who has followed the different bids. "It alone has digest something as big as Galer Mr Roger Cooke, director-gen

eral in Spain of the UK's Healey and Baker property group, said the El Corte Ingles takeover was likely to maintain the Galerias stores including those in Madrid where the two groups operate 12 stores. "Where one unit is close to another one, El Corte Inglés will segment its business and offload some of its departments



With Galerias, El Corte Inglés will have 62 stores and will be open for business in 13 locations where it was not present. With such coverage the group will pursue its tested formula of selling

48,000

social scale. "Its a large empo rium business strategy that is peculiar to Spain and which has achieved tremendous customer loyalty," said Mr Peter Carr, director-general of Galerias when it was owned by Mountleigh.

Schwarz Pharma expands

By Andrew Fisher in Frankfurt

Schwarz Pharma, the fastgrowing German pharmaceutical company, bas announced two US acquisitions worth \$294m as part of its strategy of developing business ontside Europe using funds from its current DM240m (\$170m) stock market issue.

It is buying Central Pharmaceuticals, based in Indiana, for \$178m, and the Reed & Carnrick division of Block Drug Company in New Jersey for \$116m. The purchases will donble Schwarz Pharma's US turnover to about DM200m, raising the US share of its total turnover to 27 per cent next year from 14 per cent.

Mr Patrick Schwarz-Schütte, chairman, said the company wanted to develop outside the increasingly regulated European market, and state intervention in

the US was less marked. Central Pharmaceuticals, with turnover of \$46m, specialises lu cold treatments and iron preparations and Reed & Carnrick, with sales of \$51m, specialises in gastro-intestinal and heart

drnes. Schwarz Pbarma, Germany's ninth largest drugs company, is one of a crop of large initial public offerings in that country this year. The largest is the planned DM2bn IPO by E. Merck, another pharmacentical concern. Dentsche Bank, leading the Schwarz Pharma issue, said the issue price of the 4.95m oew shares would be set at DM49-DM56 to raise at least DM240m. This will leave 78 per cent of the sbare capital with the family owners.

The subscription period for the sbares runs from today until June 12, with the issue price being decided by the bookbmld-ing method under which investors' bids are assessed in advance. The IPO was postponed from earlier this year because of weak market conditions.

Mr Schwarz-Schütte said the company hoped to achieve turnover of about DM2bn by 2000, about DM600m through acquisibe financed half from the company's resources and balf by bank loans.' Last year turnover rose 4.5 per cent to DM882m, with net income 78 per cent bigher at DM70m as a result of international expansion and cost cuts.

Earnings per share are forecast by Deutsche Bank Research to rise to DM3.57 this year and DM3.95 in 1996 from last year's DM3.10. Turnover is expected to total DM1bn in 1995 and

Barry Riley

Recession spotters wait for the fog to clear



would think so, from the way that term interest rates ere tumbling around the world. Those fears of capital shortages in the face of inadequate US savings and burgeoning emerging markets capital demands are looking miscon-

Are we in a boom? You might think that too, from the way that Wall Street is leading most stock markets higher. Strong growth in dividends and corporate earnings in most countries outside Japan have driven the World ex-Japan Index to all-time highs. Investment strategists are

agonising over how to make sense of it all. The instability that plagued currencies earlier in the year appears to have been transferred to the securities markets. Salomon Brothers' World Government Bond Index recorded its best single month for eight years in May, scoring a 3.44 per cent in local currency terms.

That may not sound much, bot this index is dominated by relatively short-dated paper. If you increase duration, the returns multiply. The total return on long-dated UK gilts so far this year has been about 11 per cent,

20 per cent, beating the S&P 500 Index (and equivalent to an annualised rate of return of some 55 Such figures indicate that the whole market movement in recent months has been primarily driven by bonds, although in driven by long-term investors please.

equalling that on the All-Share

Index. On US long Treasury

bonds the return has been about

Are we in a most countries the background recession? You for equities has been favourable enough for them to have partici-pated quite fully. The big excep-tion has been Japan, beset as it is by financial and economic ago-

> Only in Japan have the consequences been hrutally stark: bond prices have soared, with the 10-year bond yield down from 4.6 to 2.8 per cent in five months, while the stock market has fallen

18 per cent. The other important influence

Today's markets are not being driven by long-term investors making rational decisions

has been that arising from the erratic policies of the US Federal Reserve, which pumped out liquidity in massive quantities in 1993, tightened sharply in 1994 and has now loosened again. This is no way to run a steady ship. Right now the Fed is having to cope with the rise in inflation generated by its extravagances of 1993, but also with a sharp economic slowdown, maybe even a recession, which seems to have happened because the 1994 recovery was essentially a fragile cor-

the jury, like O.J. Simpson's, has not gone out yet. Confused? You should be.

porate sector bubble rather than

a broadly-based upturn, although

making rational and co-ordinated top-down asset allocation decisions. Nor, apparently, are they being greatly influenced by the hedge fund managers, the villains of 1993.

The big winners from the gains in the government debt markets are presumably the central banks which have been buying bonds -mostly US Treasuries - on such a vast scale over the past year During this time the Bank of Japan alone has spent about \$50bn, though its gains on bonds will have been offset by losses on the dollar-yen exchange rate. The BoJ can deflate the yen bubble only by transferring the air pres-sure into dollar bonds, and thereby out into the global secu-

Incidentally, the last time that Japanese government bond yields reached this low was in May 1987. after which they doubled inside a few months. That bear market in bonds helped to trigger the 1987 giobal stock market crash. When JGB yields got down to 3.1 per cent in January 1994 there fol-lowed the bond market crash. Now they are at 2.8 per cent

What follows later in 1995 may not be as violent as a crash, but plainly the markets are out of line and they are beginning to look dangerous.

If the US economy bounce back from what turns out to be nothing more than a sharp inventory correction, the US Treasury bond market will be very exposed. If the US economy stays flat, and Japan stays in trouble, the world economy will be looking sick and equitles will have bear the brunt of the Today's markets are not being realignment. Place your bets,



Which environmental company's product is just as vital for silicon chips as for potato crisps?

For the full picture, see Company Results on Friday

INTERNATIONAL COMPANIES AND FINANCE

BNP and UAP in talks over Suez Asset sales

Banque Nationale de Paris and Union des Assurances de Paris, two of France's largest financial groups, are actively considering a closer relationship with Suez, the country's largest financial and industrial holding company in which they both bold important

The plans come in spite of their denials of reports in the French press of a specific three-way merger plan drawn up over the past few weeks and abandoned after intervention from the French government.

BNP and UAP both stressed in statements the importance of the future strategy and profitability of Suez, and did not deny they were in discussions over a possible restructuring. Over recent months the

growing interest of BNP in Suez has become one of the biggest open secrets in the financial marketplace. BNP has increased its stake to about 5 per cent in the past six

months. Mr Michel Pébereau, BNP's chairman, bas repeatedly refused to elaborate beyond the wording of a carefully-drafted statement saying the bank's interest has always been simply for investment purposes.

The French government was swift on Monday to deny suggestions that it had discussed the idea of a large-scale merger between the three institutions. let alone that it had blocked its development.

in a country gripped hy the idea of the power of a closelyknit elite - a presidential campaign theme used with effect



Moving closer: Gérard Worms of Suez (left). UAP's Jacques Friedmann and BNP's Michel Péberean is certainly scope for speculation about the political undertones of further machinations

between BNP, UAP and Suez. Mr Pébereau - who is an inspecteur général des finances, the most senior rank of French administrative elites – has been closely linked to Mr Edouard Balladur, the former prime minister, and some suggest be built up BNP's stake in anticipation of Mr Balladur winning the presidential race.

Mr Jacques Friedmann, chairman of UAP, is also an inspecteur and a long-standing ally of both Mr Chirac and Mr Balladur. Some commentators have placed significance on his visit last week to the Matignon office of Mr Alain Juppé, the prime minister and one of his

However, even if personal connections could prove important in smoothing any final action, there are plenty of purely financial reasons why Suez appears a tempting target for restructuring.

Most notable is the substantial discount of the share price of Suez to its net asset value, in turn reflecting a series of disappointing financial results including a FFr4.7bn (\$954.02m) loss and a FFr7.6bn provision for 1994 to allow it to withdraw entirely from the property sec-

For BNP, there is a particular attraction. Banque Indo-suez, an investment bank controlled by Suez, would give BNP a way to strengthen its own investment banking arm. capital market activities and

network in Asla. Mr Gérard Worms, chairman of Suez, argues that losing Indosuez would be "very damaging" to his group, in which be argues it has a future as a niche player.

Indosuez is not without probhowever. lronically. the European rating agency, yesterday downgraded the bank over concerns about wbether its property portfolio was adequately provisioned.

and uncertainties about its capital markets activities. Mr Worms also suggests that a hostile takeover of Suez by BNP would be too dilutive for the latter's sbarebolders. Hence the need for BNP to find allies, which could be drawn from Suez's existing larger owners, including St Gobain,

Elf Aquitaine and UAP. For UAP, a direct takeover has less obvious relevance since Suez divested its insurance interests - most notably Victoire, which was sold to Commercial Union of the UK last year.

However, the group is believed to he interested in reinforcing its financial links. in general, the pressure for change comes at a time when there is growing pressure from investors to seek better returns not least those at UAP who have been disappointed by its performance after its privatisa tion at a relatively high price

help IRI cut losses for year

IRI, the Italian state holding company, yesterday announced a sharp reduction in losses during 1994 both at the consolidated and group ievels.

Consolidated losses were cut to L354bn (\$218.01m) from L10,209bn while group losses fell to L1,471bn from

The difference between the two performances reflected the inclusion in the consolidated resnits of strong dividend returns from the Antostrada motorways division and IRI's 60 per cent ownership of Stet. The group figures showed the effects of continued heavy financial charges.

The improved balance sheet was broadly in line with forecasts made last year by Professor Romano Prodi, the outgoing chairman, when be was making way fnr Mr Michele Tedeschi his successor.

The overall result reflected an acceleration in asset sales dnring 1994. These divestments included IRI's stakes in Banca Commerciale Italiana. Cirio-Bertoli-De Rica, the agroindustrial group, and the spe-cial steels division of Ilva.

Delays in approval from the anti-trust commission prevented inclusion in the accounts of L590bn from the final tranche of SME, the foodstuffs holding of which CBDR had also formed part.

A management note also attributed the reduced losses to savings and rationalisation within the holding. The combination of asset

belped cnt overheads and

reduced debt. Consolidated deht fell to L59,968hn from L70,321hn while group debt dropped marginally to L23,040hn from L24,098bn. During the year group turnover reached L81,063hn against L79,786bn, roughly equivalent to 5 per cent of national gross domes-

tic product. Consolldated net assets increased 20 per cent to L30,019hn while during 1994 the group's capital was raised from L2,009hn to L6,364hn.

been made possible by a change in the Basque region's neer. The participations will be

A change of culture for

the Basque co-operatives

sources to fund its expansion, reports David White

Spain's Mondragón group is looking to outside

Spain's 12th largest business concern in terms of sales. Mondragón Corporación Cooperativa, the central Until now the group's only means for tapping external administration at the head of about 100 industrial, financial and commercial co-operatives. expects this month to decide tive handicap. on the purchase of a listed company which will act as

vehicle for the participations. The co-operatives, together with more orthodox subsidiaries and joint ventures outside Spain, form a near \$5bn-ayear group with 26,000 employees and interests as diverse as banking, bicycles, bridges,

Plans are due to be finali-sed within the next few

the first investments by Span-

ish and foreign institutions in

Basque co-operatives at the

heart of the Mondragon group,

weeks for channelling

buses and dishwashers. The move towards tapping the stock market for funds - a new departure in Mondragón's 40-year existence as an industrial organisation - comes after long and hesitant preparation. The group came to the conclusion four years ago that it needed more capital than it could generate internally. It began working on concrete plans in 1993, but these were delayed last year because of

depressed market conditions. lts approach is still ultracautions. "We have to see bow well it goes down," says Mr Javier Mongelos, board chairman. "We know the white goods market and the auto components market, but not the capital markets."

The planned first step will sales and rationalisation involve relatively modest ontside investments of Pta12bn (\$99m). Of this, Pta7hn will go into "special participations" in four co-operatives in the Basque region, all until now worker-owned: the Fagor comestic appliance company. Fagor Eoerlan, a producer of auto components, Oruna, specialising in lifts, and Urssa, a construction venture focusing on steel structures.

In addition, MCC is seeking a "reserve" of Pta5bn to go into new businesses, including joint ventures outside the workerownershin structure.

legal framework for co-operative ventures, of which Mondragon is a widely-admired pionon-voting. with dividends paid out of pre-tax profits.

funds has been through borrowing, creating what Mr Mongelos describes as a competi-

The group plans to purchase an investment company from a current sbortlist of three.

'We know the white goods market and the auto components market, but not the capital markets'

These include Ascorp, controlled up to now by Once, the Spanish blind people's organisation. A listed company is being sought in order to provide liquidity, and MCC has opted to huy an existing portfolio company rather than set up a new one, to gain a "back door" entry to the stock markets. Under Spanish stock exchange regulations a new company would not be eligible for listing until it had shown profits for two years.

Contacts with potential institutional investors are being handled through London-based

MAP Securities. The investment unit will be traded on the Madrid and Bilbao exchanges. MCC plans to retain a stake of about 10 to 12 per cent in the unit. A further per cent will be made available at special conditions to members of the co-operatives. to help win them over to the

Says Mr Mongelos: "We have to be careful how we explain this. It's a new formula that could be badly interpreted." The plan coincides with international expansion. In the

Access to new capital has past three years the group has een made possible by a begun to function as a multina-hange in the Basque region's tional, building up a series of manufacturing and retail operations outside Spain.

A new joint venture with a Moroccan partner at Moham media, near Casablanca, is set to make 80,000 refrigerators a year when in full production and another joint project is under negotiation in Egypt. An agreement has been signed to supply washing machines in kit form to Iran, and a Chinese inint venture for luxury coaches has been established

in Tianjin. These are in addition to subsidiaries in Mexico and Thatland, and hypermarkets in southern France in partnership with the French Promodes group. The Spanish concern has also bought control of a French computer services com-

pany, SEI, in Bayonne. "We are learning to live with two different cultures," says. Mr José Ignacio Gárate, an MCC board member. The foreign units are not run according to co-operative precepts, and managers have to be hired at market rates, in contrast to those at MCC, whose salaries are often 30 to 40 per cent below what they might receive in other companies.

ecovering from an economic recession which led to a fall in the group's industrial furnover in 1993, MCC showed a 17 per cent growth in pre-tax profit last year to Pta33.7bm on sales of Pta496.9bm Mr Mongelos forecasts a 12 per cent rise in earnings to about Pta38bn thisyear, with sales of close to Pta600bn, an increase of about 20 per cent. Exports are expected to increase 26.5 per cent to Pta100bb.

In the first four months, exports were 30 per cent up on the same period last year and Spanish sales by the group's industrial companies up 21 per cent. This growth is expected to lead to an increase of 2,400 in the total workforce. Its industrial units, which shed 1,400 employees between 1992 and 1994, are expected to add 1,100 new jobs this year.

TeleDanmark considered joint SPT bid

By Vincent Boland

TeleDanmark considered forming an alliance with a consortium of Czech banks to bid for a stake in SPT Telecom, the Czecb Republic's state tele-

phone company. However, officials at the Danish operator confirmed yesterday that talks between the parties were subsequently called off, and TeleDanmark suhmitted a hid on its own.

Mr Hans Würtzen, chief executive of TeleDanmark, said an man of Komercni Banka, said

alliance with the consortium, led hy Komercni Banka, was one of a number of options explored to strengthen its chances of winning the 27 per cent stake, for which final hids were lodged last Friday. Talks were called off because of the difficultles of introducing a

Mr Würtzen sald TeleDanmark had lodged a "competi-tive and fair" hid for the stake. but declined to elaborate.

new partner into the bidding process at a late stage

Dr Richard Salzmann, chair-

last month the bank was seeking a role in SPT's future through a possible alliance with one of the bldders.

The European Bank for Reconstruction and Development is also believed to have sought a role in the modernisation of the Czech company, which is set to begin a multihillion dollar programme once the government selects its strategic partner.

Mr Würtzen said that if the bld succeeded, a representative of British Telecommunications, which is informally supporting TeleDanmark's bid, would sit on a committee that will oversee the modernisation plan.

The Danisb operator plans to make SPT an International telecoms hub and a oreferred distributor for BT's Concert a joint venture with MCI of the US which provides global telecoms services to companies in the Czecb Republic.

A steering committee overseeing the tender is currently evaluating the five bids. The government is expected to decide the winner by the end

Crédit Agricole 1994 Results

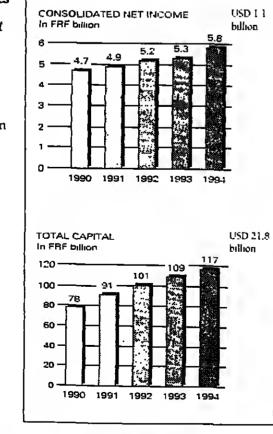
Higher earnings and strengthened capital base Crédit Agricole consolidates its lead in the French banking industry

5.8 billion francs of consolidated net income, up 8.5 % from 1993, makes

Crédit Agricole France's No.1 bank in terms of earnings.

116.6 billion francs of total capital

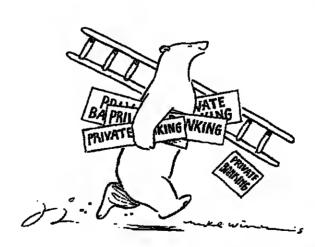
- nearly 80 % of which is Tier One capital - confirms Crédit Agricole's solidity and its place among Europe's leading banks.



1,754 billion francs of total consolidated assets, up 5.2 % from 1993, illustrates Crédit Agricole's expanding franchise and growing market share.

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The government of Eduardo Frei, which will remain in power until the year 2000, merke e continuation of economic and political etability that hes become the envy of Latin rica. The survey will report on the country's economy politicel ecene, financiel arkets and more.

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FT Surveys

Paper profits clear space for restructure Enso-Veitsiluoto merger highlights concentration of Finnish forestry, says Hugh Carnegy While newspapers wince at the recent repid rise in paper prices the rich flow of unriftee Note that the share of global market recent groups to date in the present concentration of Finnish forestry, says Hugh Carnegy Finland: the share of global market recent groups to date in the present concentration of Finnish forestry, says Hugh Carnegy Finland: the share of global market recent groups to date in the present groups to date in the groups

prices, the rich flow of profits that the high prices are pumping into producers has provided the opportunity for some long-awaited restructuring in largest forestry sector exporter after Canada.

This month, the Finnish government gave the go-ahead for a merger of two of the country's top forestry products groups, Enso-Gutzeit and Veitsiluoto, both at present controlled by the state. Assuming it is approved by parliament, the merged company (yet to be named) will become not only the biggest in the sector in Finland, but also the third-largest in Europe after SCA and Stora, both of neighbouring Sweden.

The move confirmed a trend of the current upturn in the forestry industry cycle, of producers seeking to use their restored profitability to consolidate - rether than to add output capacity that could prove costly when the highly cyclical industry turns down again. The Enso-Veitsiluoto merg-

ers follow the takeover earlier this year by SCA of the German group PWA, which allowed SCA to overtake Stora as Europe's biggest forestry products producer.

Enso and Veitsiluoto have announced that the merged company would spend FM2.5bn (\$581m) on a new 360,000 tonne. fine-coated paper machine in Oulo in northern Finland, one of the biggest investments in

in New York

PT Satelit Palapa Indonesia (Satelindo),

the country's rapidly-growing telecoms group, has unvailed plans to list its shares on the New York and Jakarta

stock exchanges, AP-DJ reports from

It also said yesterday that there

would be no more share sales to foreign

in 1998 or 1999, depending on the inter-

nal and external conditions," Mr Iwa

In April this year, DeTeMobil, a sub-

Sewaka, the group's president, said,

We plan to offer shares to the public

companies before the listings.

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But Mr Jarl Köhler, head of the Finnish forest industries federation, said the investment was fully justified in the context of the merger of the two companies, which are strongest in fine papers and publicaion papers

Mr Köhler described the merger as "a very good move. It will yield hundreds of millions of markka in savings," he said. By combining forces in what is a capital intensive industry, the two groups would be better equipped to within the industry.

Enso-Veitsiluoto had com bined turnover last year of FM24bn and is predicting sales in 1996 of more than FM30bn This puts it ahead of United Paper Mills (owned by the Repola group) and Kymmene the next largest Finnish groups, and makes it comfortably larger than the fourthplaced competitor. Metsa-Serla.

The merger was foreshadowed by Enso's acquisition last year of a 35 per cent stake in Veitsiluoto, which it purchased from the government. One of the consequences of the merger will be a reduction in the state's holdings, which at present amount to controlling stakes in both companies. The government has said it is prepared to relinquish even a minority stake in Veitsiluoto. But it is not yet clear whether the state will remain a major sharebolder in the merged

Satelindo to list ders to buy a 25 per cent shareholding in Satelindo.

sidiary of Germany's Deutsche Tele-

kom, beat three other international oid-

Blockbuster Entertainment, the US

home entertainment concern acquired

by Viacom last year, has acquired 80

per cent of Grupo Mexicano de Video,

its Mexico franchisee, for 835m, AP-DJ

Blockbuster said the Mexico fran-

chisee operated 100 Blockbuster video

stores, either alone or through regional

joint ventures, and planned an aggres-

the Mexico franchisee to "take advan-

tage of significant growth opportunities

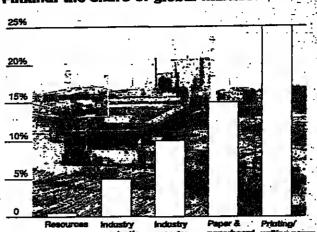
It said the investment would enable

Blockbuster buys

reports from Mexico City.

sive development programme.

in the country".



group in the long term. In the meantime, the question is whether further restructuring is still to come within the Finnish industry. The merger with Veitsiluoto is the culmination of steady growth by Enso. Its turnover grew from FM9.4bn in 1991 to FM17.7bn last year, in part through large acquisitions of forestry operations from Ahls-trom and Tampella. Previously, the sector had seen the

his restructuring has been part of a dramatic concentration of the industry over the past 25 years. Since 1970, total production of paper, paperboard and pulp by

merger of Repola and UPM in

Finnish companies has doubled to 22m tonnes a year. But in the same period, the share of the sector's turnover accounted for by the four biggest companies has risen from 33 per cent to 85 per cent.

Finnish companies, with S per cent of world forestry industry output, account for 10 per cent of global forestry industry exports. They are among the most efficient producers, leading the world in the average size of their paper and paperboard machines.

Like their Swedish rivals, Finnish companies are enjoying a surge in profits after a deep recession in the early

Last year total profits in the Finnish industry reached

China Steel up 79%

China Steel, the Taiwanese steel group,

has posted a 79 per cent jump in pre-tax

profit, to TSL83bn (USS7L3m) for the

China bank ahead

year to May, AP-DJ reports from

1S per cent.
But the industry has still not fully recovered its financial strength after the recession. Total net debt in the sector exceeded total turnover in 1992 and stood at more than 70 per cent of turnover last year, it is expected to fall to 54 per cent by the end of this year, but will still be short of target levels of 35 per cent to 40 per cent Like wise, the industry's overall equity-to-assets ratio has improved since the recession to 40 per cent, but remains short of the 50 per cent optimum. Against this background, the

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big producers may yet look to further restructuring to bolster them against the next-downturn. Although the profits flow is expected to continue strongly through next year Nordic forestry companies have already begun to see their share prices falter as the market anticipates the end of the present boom.

Last year, Kymmene and UPM were in talks on what would have been a spectacular merger, but broke off because of a disagreement on price. Metsallitto, the co-operative group that owns Metsa-Seria had made plain its interest in some kind of link with Enso until stymied by the Enso-Veitsiluoto merger.

Mr Köhler does not rule out some further restructuring. "All options are open, I would not put it beyond doubt that something could happen."

owned bank last year, were boosted by the abolition of the dual-track foreign exchange rate system on January 1 1994, which saw a steep devaluation in

China's other big banks which deal mainly in yuan, were weaker.

Taipei. This compares with the year-ago figure of T\$1.02bn. Placer Pacific bids The results were struck on revenues

Australia's Placer Pacific said it had of T\$5.82bn, up 23 per cent on last lodged a bid for Benguet's Kingking copper and gold property in the Philippines, Reuter reports from Melbourne. "We are interested in the area and we

Bank of China has credited reforms of have put in a tender. We expect an outcome within about two weeks, the country's foreign exchange system and improved management for pre-tax 1994 profits of Yn12bn (\$909m), up 22.5 Placer said. It said Placer Pacific, about 75 per cent-owned by Placer Dome of per cent from 1993's result, the China Canada, had hid for all of the property. Daily said, Reuter reports from Beijing. The profits, the highest by a stateestimated to contain 2.9bn pounds of copper and 5.5m ounces of gold.

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INTERNATIONAL COMPANIES AND FINANCE

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European chemical companies Hoechst and Rhône-Poulenc are merging their South American polyester and nylon fibre businesses into a new company, Fairway Filamentos, to be headquartered in Brazil.

The two partners hope the merger will give them critical mass to face growing south-east Asian competition in markets such as Brazil Independently, the two businesses are not profitable enough to war-rant new investment and cope with increased demand, according to Mr Edson Vaz Musa, chairman of Rhodia, the Brazilian arm of Rhone-Poul-

Fairway is forecast to have 1995 sales of \$400m, half of that from polyester fibres. The com-pany intends to invest \$35m in the next two and a half years to increase capacity, update technology and launch new products. Annual polyester capacity will be increased to 51,000 tonnes from 41,000 tonnes, and nylon capacity will rise by 10,000 tonnes to 50,000

About 3,100 people will be

employed in four factories in São Paulo, with products aimed at the textile and industrial markets. The companies gave no details on job loss Brazil's textiles companies have faced mounting pressure from imports eince tariffs started to fall in 1990. The local currency has been overvalued in the last year, and imported nylon and polyester threads have increased their market

share from almost zero to between 15-20 per cent. Mr Vaz Musa said the merger had been discussed for about a year and made sense because the two companies had different clients and prod-

Magna climbs 10% to C\$79.8m in term

By Robert Gibbens in Montreal

A slow start-up of production . of Chrysler's new minivan in the US and a lagging European market narrowed Magna International's third-quarter margins, but the upward trend in

earnings trend continued. The automotive components group said net profit for the three months to April 30 rose 10 per cent to C\$79.8m (US\$57m), or C\$1.30 a share, from C\$72.4m, or C\$1.18, a year earlier, on revenues of C\$1.23bn against C\$1bn.

Profit for the first nine months rose 38 per cent to C\$234m, or C\$3.90 a share, from C\$169.2m, or C\$2.82, on revenues of C\$3.37bn against

Magna said the gains were

tion of the North American parts market, improved income from subsidiaries, lower inter-

est cost and lower taxes. US carmaker Chrysler's minivan output was speeding up and Magna's margins should improve. Magna supplies C\$1,400 worth of parts to each new miniyan.

Magna said it expected its European operations, which account for about C\$1bn of annual revenues, would become more profitable as the recession eased, but warned that European margins were traditionally lower than those in North America.

 PanCanadian Petroleum, the energy arm of Canadian Pacific, has bought 75 per cent of US gas marketer National Gas & Electric to gain more control in marketing its natu-

US bank ruling quashed

The supreme court of West Virginia has overturned a \$56m judgment against Morgan Stanley, the US investment

The case arose when West Virginia's State Board of Investment sustained losses on US Treasury bonds in 1987, and sued nine Wall Street firms, including Morgan Stanley.

which had advised it.
The investment board had argued that the transactions were illegal because they were made with borrowed money,

and the advisers were liable because they had encouraged

The decision may have implications for the case of Orange County, the Californian local authority which went into bankruptcy and is suing Merrill Lynch over transactions that firm carried out on its

Seven of the nine firms sued by West Virginia settled out of court, but Morgan Stanley and Chase Securities contested the

The Chase Securities case has been pending awaiting the Morgan Stanley ruling.

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Doubt hangs Reaping the rewards of tough restructuring over top

MCA job By Tony Jackson in New York

The issue of management succession at MCA, the Hollywood studio owned by Seagram, the Canadian drinks group, was in further doubt yesterday with the apparent withdrawal of two rumoured candidates for the top job.

Mr Terry Semel, chairman of rival studio Warner Bros, said in a statement that he looked forward to "yet another record-breaking year" with his present company. Meanwhile, talks between Seagram and Mr Michael Ovitz, head of Hollywood's Creative Artists Agency, were reported to have broken down.

Seagram would not comment on the rumours. It also disclosed sales and cash flow figures for MCA.

Total sales last year were

4.8bn, up 16 per cent on 1993. Earnings before interest, tax, depreciation and amortisation were \$533m, np 20 per cent. Sales in 1994 from films were \$2,723m (\$2,230m), from music \$1,249m (\$1,081m), from recreation services \$245m (\$313m) and from book publishing \$278m (\$245m), Cash flow from films was \$118m

(\$160m), from music \$199m

(\$151m), from recreation ser-

vices \$70m (\$95m) and from

US producers of farm machinery are on course for a bumper year, writes Laurie Morse The IIS farm machinery Agco industry is enjoying one of its strongest years Share price (5) helped by a robust domestic farm economy and efficiencies gained from five years of tough corporate re-engineering. After staggering through the farm

workforces and reined in their The outlook for the equipment companies is decidedly bullish. Farmers have experienced three consecutive years of relatively high cash incomes, and US farm exports are projected to reach record levels this year. Last year's bumper harvest of maize – the US's largest cash crop – has moved to the market rapidly, in part because China, once a

recession of the early 1980s.

surviving farm equipment makers have elimmed their

importer this year.
Although wet weather has delayed this year's spring plantings, agronomists are still looking forward to a healthy, albeit not a record, harvest. That should be enough to sustain farm incomes though 1996. This year, US agricultural exports will exceed \$51bn, up from \$43.5bn a year ago.

net exporter, turned net

The US Department of Agriculture expects US net cash income to farmers - a combination of government pay-ments and market receipts - to book publishing \$32m (\$34m).



be in the range of \$50hn to \$53bn, about the same as 1994, but down from 1993's record

The result has been a 7 per cent rise in demand for tractors, combines and harvesters, the type of big purchases that farm managers often delay if they suspect a lean year is in the offing. Prices received for the machines are also rising.
Although price gains of about 3 per cent a year in the past two years have tracked

improvement over a decade of discount-led price declines.

The three leading US equipment makers - Deere, Case, and Agco - are reaping the benefits. Unlike the frag-

mented European agricultural

inflation, they are a vast

machinery industry, the three

Share price (\$)

a share this year, np from \$7 in

are farm-related.

Deere

companies control 90 per cent of the \$6.2bn US farm equip-

ment industry Deere, with its signature green tractors, has long dominated the US farm market. Known for high-quality man-agement and good labour relations, Deere has seen sales rise 18 per cent to \$4.9bn in the first half of this year, while income jumped 35 per cent to \$373.5m. Wall Street analysts expect Deere to earn nearly \$9

Although Deere also makes construction equipment and lawn and garden machinery. about 60 per cent of its sales

The company's farm equip-

\$7.01 \$8.67 ment prospects have brightened considerably since Case began rationalising inventories and abandoned a strategy of

gain market share. he \$1.4bn restructuring at Case over the last three years was a prelude to its parent company Tenneco spinning off a majority of Case's shares to the

heavy price discounting to

Although the decision to end discounts disappointed farmers and cut Case's market share. profits rose dramatically as inventories came under control.

Mr Tobias Levkovich, a Smith Barney analyst, says the Case reforms "have clearly

helped the whole industry". Deere has also brought its troublesome overseas operations under control, reducing offshore employment to 7,700 last year from 10,000 in 1990. It has cut overheads by outsourcing European tractor production from Renault and

Case is perhaps in the strongest position to compete in the farm equipment sector, regardless of cyclical downturns. The company has cut worldwide employment to 17,000 from 33,000 in 1989. By 1997, Case expects to have only 9 factories worldwide, compared with the current 15, and 10,300 employees, as well as a re-tooled product line.

Agco, a four-year-old upstart that has grown by acquiring time-worn machinery brands and outsourcing production to keep overheads down, has seen earnings double over the last

In the long term, the challenge facing the leading US farm machinery producers is how to carve profits out of an industry with a flat growth

The 1995 farm legislation being crafted in Washington is expected to encourage farm consolidation in the Midwest, leading to a smaller, but financially more stable market for



REFUGEE

There he is. Fourth row, second from the left. The one with the moustache. Obvious really.

Maybe not. The unsavoury-looking character you're looking at is more likely to be your average neighbourhood slob with a grubby vest and a weekend's stubble on his chin.

And the real refugee could just as easily be the clean-cut fellow on his left.

You see, refugees are just like you and me.

Except for one thing.

Everything they once had has been left behind. Home, family, possessions, all gone. They have nothing.

And nothing is all they'll ever have unless we all extend a helping hand.

We know you can't give them back the things that others have taken away.



United Nations High Commissioner for Refugees

We're not even asking for money (though every cent certainly helps). But we are asking that you keep an

open mind. And a smile of welcome. It may not seem much. But to a refugee it can mean everything.

UNHCR is a strictly humanitarian organization funded only by voluntary contributions. Currently it is responsible for more than 19 million refugees around the world.

UNHCR Public Information P.O. Box 2500 1211 Geneva 2, Switzerland

INTERNATIONAL COMPANIES AND FINANCE

Thai group bids for Standard **Chartered unit**

Managemant at Standard Chartered Securities Asia, the loss-making Asian brokerage arm of Standard Chartered, the UK-based bank, holds the key to a successful conclusion to talks aimed at selling the securities company to a Thai group, according to a source close to

the negotiations. The Thai group, led by Thai Military Bank and Nava Finance and Securities, a large bank and a mid-sized securities company respectively, bave made a bid to take over Standard Chartered Securities Asia, which Standard Chartered has been attempting to sell for some time. Terms have not been disclosed. Earlier, Standard Chartered

said that "it continues to be in discussion with a number of parties, none of which is presently on an exclusive basis".

The bank said "an immediate conclusion to any of these discussions is not anticipated". Sources say the Thai bid

management at Standard Chartered Securities Asia a stake of as much as 30 per cent in the

Standard Chartered would retain a minority position. The large management component of the bid means that management has to decide whether being owned by a Thai company, which because of Thai law would prohibit

some international underwrit-ing business, would be too much of an obstacle to returning the company to profit-In addition, the willingness of management to take a stake in the company has led Stan-

dard Chartered to review previous offers to purchasa the Asian brokerage to see if one of these offers, with an additional management component, would be more attractive. according to the sources.

Standard Chartered Securities Asia bas offices in Thailand, Singapore, Hong Kong, Indonesia and Malaysia.

peboard South Korean bedrock fears free-market cracks

Posco's central economic role is set to keep it from reform in the short term, writes Peter Montagnon

stories in the local press, the

government is in no hurry to sell its remaining 35 per cent

stake in Posco. A study on pri-

vatisation, commissioned by

the government from the liber-

ally-inclined Korea Develop-

ment Institute, was due in

April but has been delayed. In

an attempt to pre-empt the out-come, Mr Hon Jae-yoon, dep-

uty prime minister, said

recently that privatisation was

no longer an issue. To devotees of pure competi-

tion policy, there are plenty of

reasons wby Posco should be

It has a 74 per cent share of

the domestic steel market. In

price terms, it has not been

able to exploit this position.

Government influence over

domestic steel prices has kept

them below international lev-

periods during the 1980s.

els, except for a couple of short

But economists say monop-

oly practices have been evident

in other ways - for example, in

delivery schedules, where

fully privatised.

here could scarcely be a better advertisement for South Korea's traditionally interventionist industrial policy than Pohang Iron and Steel (Posco).

The company's position as a supplier of steel to Korea's important automotive and shipbuilding industries made it the bedrock of the country's economic success; and, in spite of continuing government influence over its affairs, it has also attained world preeminence. Once its present expansion plan is completed, in 1998, it expects to overtake Nippon Steel to become the world's largest steelmaker.

Equally, however, the debate on privatisation, which has been rumbling on since the election of reform-minded President Kim Young-sam in 1993, is a clear illustration of Korea's current policy

Though the Kim administration espouses free market poli-cies and economic "globalisain principle, it is reluctant in practice to move away from the industrial planning which has brought the

taged by Posco's tight delivery country so much success.

In spite of occasional scare

policy.
It would be in keeping with President Kim's globalisation ideals to privatise the company and introduce some competition to the market, which would belp keep prices down. This could be done, for example, by splitting the company and putting its two plants at Pohang and Kwangyang in the south of the country into the hands of different owners. Hyundai, Korea's largest carmaker, has also expressed an interest in entering the steel

But the government remains hesitant, partly - say analysts - because it is worried about loss of control of such an important industry. It also reflects management opposition to tha idea of break-up. "A human being stands on two legs. If you lose one leg. you can only hop," says Mr Shim Chae-kang, Posco senior managing director, "Unless you have two legs, you can't run and that means you are dead." It is not as if a combination customers sometimes complain of government control and

Kim Young-sam: the Korean

flabby. Posco has a history of strong and efficient management. Rigorous inventory control helps boost margins. Thanks to careful matching of supply and demand, capacity use is high. Last year, when net income rose 30 per cent to Won383bn (\$503m), it was 106

per cent of rated capacity. Posco is also financially strong. Gearing of about 100 per cent is low by Korean standards. Though the company has high debts in yen, it has been a net beneficiary of the appreciation of the Japanese currency. S.G. Warburg, the UK investment bank, calculates that yen receipts from exports outweigh yen expendi-tures on debt service and capital equipment by about Y70bn (\$827m) a year.

It can therefore easily afford the expansion plan, which will raise its capacity by 6m tonnes to 28m. Last week the company announced that half this extra capacity would be supplied by a new Won2,000hn blast furnace at its Kwangyang plant. The furnace, which will be incorporated with existing sintering and coking plants, will involve state of the art technology, making it one of the most advanced in the world.

There is no conflict between government and the company on the present expansion. But some analysts believe the relationship could become more fraught as Posco seeks to secure its medium-term future by overseas expansion and diversification.

Already listed in New York, the company plans listings in London this year and Hong Kong in 1996. It has a joint venture with USX in the US and is building a presence in

China and Victnam, countries which, Mr Shim says, have strong and rising domestic demand for steel. Within Korea, it is diversifying into electronics and telecommunications, creating another source of growth against the time when the steel market

matures.
Separately, Korea's eventual membership of the OECD may result in pressure to reduce the gap, now about 10 per cent between domestic and international prices.

Korea may initially resolve this by lowering export prices rather than increasing domes-tic ones, says Mr J.C. Kim of BZW, but analysts believe the cosy relationship with govern-ment will start to look out of place as the company becomes increasingly multinational and as the Korean economy opens

But among his few state-ments stace his appointment last year, Posco's new chair-man, Mr Kim Mahn-je, formerly a senior economic plan-ner, has said Posco should not engage in harmful competition and should belp other inches tries through low pricing and extended credit terms. For the time being, Posco's place in the Korean economy is too impor-

Inco set to sell its mining equipment arm to Drillex

Inco, the world's secondbiggest nickel producer, is in talks to sell its mining equipment operations to Sudburybased Drillex International of Canada, Reuter reports from

Inco said the sale, set for later this month, was expected to have no significant effect on its financial position.

The deal would include Continuous Mining Systems and

all its operating units except CMS Chile, Inco said. According to Inco's annual report. CMS sales totalled

US\$37m in 1994 and it incurred an operating loss of US\$4m, compared with an operating loss of US\$2m in 1993. Inco said Drillex was expec-

Australia's largest company is ted to use the acquisition to poised to make a multi-billion dollar expand its range of services commitment to China beyond existing and products in Canada and investments, which include a steel rolling mill in Shanghai and another

By Tony Walker in Beiling

Mr John Prescott, managing director of BHP, the Australian industrial conglomerate, has targeted China for expansion in fields ranging from power plant construction to gold mining under plans to globalise further

don't want to be speculators, we want to be responsible risk-takers."

BHP's most ambitious project is a proposed \$3bn, 2,400MW power plant

and adjoining coal mine at Haerwusu in Inner Mongolia, 300 km west of Beijing. The company yesterday submitted a letter of intent to the ministry of coal industry in the hope that the project will be included in China's

the world. We must diversify further,"

Mr Prescott said in Beijing. "But we

that they have been disadvan- monopoly has made Posco

in Guangdong. "BHP continues to go ninth five-year plan, beginning next where opportunities are, anywhere in year. Inclusion is a pre-requisite for such a venture going ahead. BHP equity in the venture would amount to about \$1.5bm, and return on investment would come both from the sale of electricity and export of highquality steaming coal.

BHP targets China as part of strategy to globalise activities

BHP is also bidding for a gold deposit at Lannigou in Guizhou province, south-west China, in competition with Newmont Mining of the US. The deposit is relatively small, at 40-50 tennes of gold, but miners are showing keen interest because it would be the first large foreign involvement in the gold sector under new regulations. Gold mining was closed to for-

eigners until recently.
China has offered 10 low-grade deposits to foreign companies. BHP geologists believe the Guizhou deposit is the most prospective, and Mr Prescott said the company would be prepared to spend "significant" sums

BHP is assessing a lead-zinc deposit in Sichuan province, south-west China. The company also has a stake in China's beer industry through its 38 per cent interest in Foster's, the Australian brewing group, which has established joint ventures in Guang dong province, Shanghai and in the northern city of Tianim.

However, BHP is scaling down its involvement in oil exploration - having drilled 24 dry wells and spent . \$100m. But it plans to become more involved in downstream activities. and stepping up the marketing of mineral and energy products. . . .

All of these securities having been sold, this announcement appears as a matter of record only.

May 1995

5,250,000 Shares



Storage Equities, Inc.

Common Stock

700,000 Shares

PaineWebber International Smith Barney Inc.

Donaldson, Lufkin & Jenrette
Securities Corporation

Raymond James & Associates, Inc.

The Robinson-Humphrey Company, Inc.

This tranche was offered ourside the United Stares and Canada.

4,550,000 Shares

PaineWebber Incorporated

Smith Barney Inc.

Donaldson, Lufkin & Jenrette

Raymond James & Associates, Inc.

The Robinson-Humphrey Company, Inc.

Bear, Stearns & Co. Inc.

Alex. Brown & Sons

BT Securities Corporation

A.G. Edwards & Sons, Inc.

Goldman, Sachs & Co.

Merrill Lynch & Co.

Prudential Securities Incorporated

Nomura Securities International, Inc.

Oppenheimer & Co., Inc.

Advest, Inc. **Furman Selz** Robert W. Baird & Co.

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Rauscher Pierce Refsnes, Inc.

Fahnestock & Co. Inc.

Ladenburg, Thalmann & Co. Inc.

Crowell, Weedon & Co.

Sutro & Co. Incorporated

First Equity Corporation Pennsylvania Merchant Group Ltd

Gruntal & Co., Incorporated The Seidler Companies

This tranche was offered in the United States and Canada

Futures **Options** True Windows

FutureSource and Cash Forex Technical Analysis



71:0171 702 3377

7,300,000 Shares



Baan Company N.V.

Common Shares

(par value NLG .02 per share)

1,825,000 Shares

This portion of the offering was offered outside the United States by the undersigned

Goldman Sachs International

Morgan Stanley & Co.

Cowen & Company

UBS Limited

ABN AMRO Hoare Govett

Deutsche Bank

Indosuez Capital

5,475,000 Shares This portion of the offering was offered in the United States by the undersigned.

Goldman, Sachs & Co.

Morgan Stanley & Co.

Cowen & Company

UBS Securities Inc.

Bear, Steams & Co. Inc. Donaldson, Lufkin & Jenrette

Alex. Brown & Sons Hambrecht & Quist LLC Dean Witter Reynolds Inc. **Montgomery Securities**

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William Blair & Company Furman Setz SoundView Financial Group, Inc.

Sutro & Co. Incorporated Wessels, Arnold & Henderson Adams, Harkness & Hill, Inc. Crowell, Weedon & Co.

Oppenheimer & Co., Inc.

Amhold and S. Bleichroeder, Inc.

Principal Financial Securities, Inc.

First Albany Corporation

Scott & Stringfellow, Inc.

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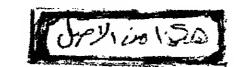
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COMPANY NEWS: UK

Seeboard to make price cuts

By Michael Smith

Arysts believe the ship with Boren-er: to look only

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Seeboard, power distributor in the south-east of England, yesterday became the first regional electricity company since privatisation four years ago to implement price cuts which had not been imposed through the regulatory regime.
It said it would allocate two thirds of

230m a year in unforeseen cost savings to cutting prices. Most of the £20m will come ... through a cut in October of standing charges for domestic customers who will as a result, see their annual bills fall by about £8 or 3 per cent on average. The company also said it expected to

provide customers with a one off rebate of £25 each if the National Grid, owned hy the regional electricity companies, is demerged as planned later this year. Seeboard said £10m a year of the £30m

cost savings would be spent on increasing dividends. Decisions on the 1995-6 dividend would be made later "but if the additional

Amersham's 9%

rise disappoints

Shares in Amersham

International, the health sci-

ence group, fell 11p to 894p yes-

terday as analysts reacted to

results at the lower end of

Pre-tax profits rose 9 per

cent to \$47.3m (£43.5m) in the

year to March 31, but were

restrained by difficult condi-

tions in Europe and restructur-ing costs in the industrial busi-

Turnover rose 2.9 per cent to £233.6 (£324.2m), with Life Sci-

ences, the group's largest divi-

sion; improving in the second

Mr. Kirk Stephenson, finance director, said the market in Europe remained "challeng-

ing" because of public sector

spending squeezes, consolida-tion in the pharmaceutical sec-

tor and depressed research

Operating profits in the Life Sciences division grew 7.1 per

Operating profits in the

expectations.

ness division.

resources had been applied for 19945, the dividend for that year would have totalled 18.5p. an additional 4p per share."

Seeboard's statement follows intense criticism of the level of utility profits and rewards for shareholders. It accompanied full year results for 1994-5 showing an 8 per cent increase in pre-tax profits to £142m and a 24 per cent rise in dividends.

Seeboard's voluntary price cut follows decisions by fellow utilities Anglia Water and North West Water to provide customer rebates of £6 and £6.50 respectively. It comes just weeks ahead of an expec-ted announcement early next month by Prof Stephen Littlechild, industry regulator, of a tightening of price caps agreed last August with the regional electricity

Analysts were speculating yesterday that Seeboard may have volunteered more than the regulator had been considering. Some said Seeboard's announcement would increase pressure on Prof Little-

healthcare division grew strongly to £13.7m (£9.4m),

reflecting a greater contribu-

tion from Metastron, the

group's pain-killer for cancer,

and Myoview, used for imaging

Ceretec, the group's brain

imaging product, met competi-

tion for the first time from

Merck Dupont's Neurolite

Sales of Ceretec declined 11 per cent but Mr Bill Castell, chief

executive, said developments

would help the company expand its market share.

was composed mainly of reor-

ganisation in the industrial

quality and safety assurance

Mr Stephenson said the divi-

sion's performance was disap-

pointing in the first half, lead-

ing to a fall in operating profits

to £5.2m (£6.7m).

A £3.9m restructuring charge

the heart.

child to impose a tough regime Mr Jack Cunningham, Labour trade

spokesman, welcomed Seeboard's nnonncement, but said there was a grow ing recognition that the present system of utility regulation was inadequate.

Seeboard said its proposed cut in the standing charge, which will cut final bills to domestic customers by 3 per cent on an annualised basis, was equivalent to cut-ting distribution prices next April by 11 per cent. Distribution prices make up a quarter of final bills.

Alternatively, Seeboard said its move equated to Prof Littlechild tightening the regulatory formula so that distribution prices could rise by only inflation minus 5 per cent for the four years from next April. Seeboard is the first of the regional electricity companies in England and Wales to announce preliminary results. However the City expects most companies to wait until after they see the regulator's conclu-sions before cutting prices.

Lottery operator turns in £10.8m

Camelot, operator of the UK's National Lottery, yesterday said it plans to become the world's most efficient lottery in terms of operating costs and returns to Government.

The operator of the lottery. which was launched lest November, returned pre-tax profits of £10.8m for the year to the end of March.

Although the result was lower than many expectations, Camelot said the National Lottery had performed well ahead of forecasts and that greater efficiency could be achieved. Sales had been 30 per cent higher than forecast and the National Lottery routinely had weekly revenues of between £100m and £110m including the weekly on-line game and

Earnings per share rose 8 per cent to 50.6p (47p). The launch of the National Lottery has been a remarkable The board recommended a success story," Sir George Rusfinal dividend of 12.1p, giving sell, the chairman said. 17p for the year, up 10 per cent The Camelot consortium is

scratch cards.

made up of Cadbury Schwep-

printers, GTech UK, the lottery equipment company. Raca Electronics and ICL, the com-

puter group. Sales in the 20 weeks to March totalled £1.2bn. Some £317m · £90m more than fore cast - went to the arts, charities, the millenium fund, the national heritage and sports.

Profit after tax totalled £6.3m which was 0.5 per cent of total revenues. Over the seven years of its licence Camelot expected net profit to remain under per cent of revenues.

By the end of March, Came lot said it had created one of the world's largest lotteries.
The consortium had invested £50m in equity backed up hy

£130m in guarantees hut had decided to write-off £30m in start up costs in the first year. Mr Tim Holley, Camelot's chief executive, was paid an annual salary of £240,000 in the year to March, a performance related bonus of £120,000 plus pension contributions of

C&W directors' pay cut

The failure of Cable & Wireless, the UK based telecommunications company, to achieve performance targets has resulted in a cut in the remuneration packages of the company's executive directors.

Rach executives director's

package of salary, allowances and benefits has been cut by about one third. Lord Young, the group's chairman saw his remuneration fall from £777,163 to £479,247, while James Ross, chief executive was paid £391,275 compared with £578.100 the year before.

The salary changes are shown in detail in the annual report published this week. Mr Michael Harris, formerly chairman of C&W subsidiary Mercury Communications, who left the group at the end of last month was paid £289,894, down from £395,426. He received compensation of

his departure.

increasingly tight price limits. "Given the medium-term nature of regulation, we think it is entirely appropriate that the benefits of outperformance £313,667, the equivalent of one go to shareholders," said Mr Hoffman. ear's salary and benefits on

Thames Water struck out at

the trend by fellow utilities

North West Water and Anglian

Water, declaring it would not be drawn into making special payments to customers or

The company, which also

announced a sharp rise in annual profits, claimed the

practice of making special one-

off payments could jeopardise

the basis of the current

regulatory regime in the

Mr Mike Hoffman, chief exec-

utive, said there was a danger

that "in the current political

environment, the value of

medium-term incentive regula-tion could be lost".

Under present regulation

customers are rewarded

through improved quality and

shareholders.

paying one-off dividends

Thames Water rules out

Mike Hoffman: ontperform-

ance goes to shareholders His comments came as Thames eccompanied a 26 per cent increase in pre-tax profits to £304m with a higher than expected 15 per cent rise in the final dividend to 17.1p. The total payout to shareholders was 12.4 per cent higher at

expected to be able to maintain dividend increases at roughly these levels, if its years of privatisation was

The company said it made savings of £300m on its capital spending programme since

The Labour party attacked the company's profit performance, claiming it highlighted the need for greater consumer protection in privatised monop-

The halance between the interests of shareholders, directors and those of consumers has been completely lost," said Mr Jack Cunningham, shadow secretary for trade and indus

come under heavy fire recently over the level of profits and payments to shareholders and

Thames's attempt to rule out special dividends before the next general election, in favour of what it hopes will be steady dividend growth, was not welcomed by the market.

The shares closed 8p down on the day at 500p.

							,		- Dividends -			
	Tornover (Sm)			t (Em)	EPS (p)		Current payment (b)	Dese of payment	Carresponding dividend	Total for year	Total lest year	
Uha Yr to Mar 31	154.6	(126.3)	8.64	(7.04)	14.64	(12.11)	4.2	Oct 23	4	5.3	5	
Used Colloids Yr to Aor 1	356	(326.B)	50.3	(45.9)	7.09	(6.23)	2.05	Aug 25	1.86°	26	2.36*	
meraham knifi	333.6	(324.2)	47.3♥	(43.5)	50.6	(47)	12.1	July 28	11.1	17	15.5	
notice Yr to Apr 1	193.3	(176.7)	21.1	(25.1)	16.8	(19.3)	6.2	Sept 7	6.2	10.3	10.3	
pollo Metals 6 onths to Mar 31	26.9	(15.2)	1.31	(U.22L4)	3.4	(21.)	1.3	July 28	1.2		3.6	
scot Holdings	47.5	(77.8)	51.8♥	(6.88L)	496.7	(206.3L)	nfl		nii	₽ B	,ail	
lacks Leisure Yr to Feb 28	65.6	(60.3)	0.61	(0.93)	1.62	(2.4)	1.5	Oct 18	1.5	2.25	2.25	
edardata	8.93	(8,12)	3.57	(2.71)	7.9	(6.3)	2.2	July 18		3.25		
PL Aromes Yr to Mar 31	21.2	(17.3)	2.04	(1.44)	14	(1.8)	2.5	July 28		3.7		
e La Rue Yr to Mar 31	747.1	(592.7)	146.6	(129.8)	55.1	(49.9)	16	Aug 14	14	23	20	
acty Group Yr to Feb 28	16.4	(14.6)	1	(0.71)	5.14	(4.17)	ï	Aug 21	0.7	1.9	1.2	
exopeen Colour Yr to Mar 31	17.5	(15.6)	1.87	0.22 1	3.8	(2.48)	1.125†	July 7	0.8	1.7	1.15	
eyer lot Yr to Mar 31	1.303	(1,193)	51.6	(41.6)	28.4	(24)	7.3	Sept 1	6.6	11.5	10.8	
SM Yr to Mar 31	123.3	(111.9)	6.05	(2,12♥)	11.21	(9.9)	4	Aug 10	mil	cil	nii	
Yr to Mar 31	196.8	(122.5)	29	(24.6)	25	(22.4)	5.9		5.3	B.1	7.3	
acel Yr to Mar 31	950.2	(916.1)	58.3	(26.4	13.65	(5.47)	3.25	Aug 24	2.75	5	4.25	
echoard Yr to Mar 37	1,196	(1,218)	1424	(131.7)	41.5	(37.8)	10.5	Aug 3	8.45	14.5	11.75	
heriff Holdlons \ 8 mins to Mar 31	10.7	(8.68)	1.85	(1.2)	10.9	(7.4)	2.25	Aug 18	1.75		5.75	
taveley lods	342.2	(338.9)	20.2	(8.8)	13.6	(3.4)	6.2	Aug 8	6.2	8.5	8.5	
westment Trusts	MAS	MAY (p) Attributable Exchings (End			, pe	i (r)	Current payment (p)	Date of payment	Corresponding dividend	Total for year	Total last	
							paysa (p)				-	
dinbergh knoome	39.8	(50.7)	0.617	(0.688)	4,11	(4.59]	1	Aug 2	1	4	4	
Mahurgh New Tiger 6 mths to April 30	30.83	(45.28)	0.605	(0.944)	0.216	(0.337)	7.	. •			:-	
Serinsore Shared Eq	71.1	(88.6)	3.73	(1,65)	9,91	(4.85)	24天	June 30	2.4	9.6	4.8	

Phiancial Times plans to publish a Survey eets and The North and mesital/Plane 20.

The Financial Times will from June this year be printed in the North of England when printing starts in Leeds

To mark this event the FT will be publishing a special survey. This will focus specifically on Leeds and its position as the principal business centre of a region stretching north from Yorkshire through to the Scottish border.

It will look at the region's principal economic activities and at the strong growth in recent years in financial and professional services. It will also profile some of the key figures behind Leeds' success.

This survey offers a unique opportunity to project your organisation to a worldwide audience at a time when the FT itself will be focusing attention on Leeds through its decision to create strong new links with the city

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FT Surveys

TOP FINANCE (BERMUDA) II LTD US\$ 25,000,000 FLOATING RATE NOTES DUE 2000 dee is hereby given that for the rest period from 7 kme 1995 to ? 1995 the notes will carry as se of 5.96% per amount.

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Collared Floating Rate Notes Notice to Noteholders

Continuously Priced Tender Offer Lehman Brothers

Lehman Brothers International (Europe) ("Lehman Brothers") is offering to purchase (the "Offer") for cash any and all of the outstanding securities listed below (the "Notes"). The offer will run from, and including, June 7, 1995 to, but excluding, June 21, 1995 (the "Tender Period").

Holders may obtain directly from Lehman Brothers the purchase price in respect of any Note by calling the telephone numbers set out below. Throughout the Tender Period Lehman Brothers will provide on Bloomberg page reference "Corp O LEHM" (Menu Option: Collar Tender) an indicative purchase price for the Notes. It is Lehman Brothers intention to provide holders of the Notes with indicative purchase prices throughout the Tender Period that are only adjusted to reflect the market value of the Notes taking into account such factors as movements in relevant market interest rates and interest rate volatilities.

The settlement date for the Notes will be the third business day following the date upon which the Notes are tendered.

Holders of Notes will receive accrued interest in accordance with the terms and conditions of the Notes to, but excluding, the settlement date Lehman Brothers end its associates have or may have positions or holdings in the securities listed below and have provided significant advice in relation to the securities listed

below within the previous twelve months. For purchases of Notes made through an intermediary acting on behalf of a holder of Notes, Lehman Brothers will pay such intermediary a commission equal to 0.1 per cent. of

the principal amount of the Notes purchased. Unless extended by a subsequent notice to Noteholders, the Tender Period will expire at 4.30 p.m. on June 20, 1995.

Lehman Brothers may, in its sole discretion, terminate, withdraw or suspend the Offer in respect of one or more series of Notes, without prejudice in the remainder of the Offer Any such termination, withdrawal or suspension shall be indicated on Bloomberg on the page reference mentioned above.

laster	ISIN	Amount US\$ million	Maturey	Lanuer .
Abdij Nationaal Pirst Capital BV	XS0039737787	75.00	Sept 2002	European Bank for Reconstruction 6
Abdij Nationaal First Capital BV	XS0042960103	100.00	Apr 2003	Development
ABN AMRO Bank NV	XS0039245302	150.00	Aug 2002	Finnish Export Credit Limited
Auxiliaire de Crédit Foncier de France	X50039479638	300.00	Sept 2002	International Bank for Reconstruction
Auxiliaire de Crédit Foncier de France	X50041958504	160.00	Feb 2003	& Development
Banca Nazionale del Lavoro SPA (HK)	XS0046054622	225.00	Oct 2003	Internationale Nederlanden Bank N
Bank America Corp	XS0044437563	150.00	June 2003	Internationale Nederlanden Bank N
Banque Nazionale de Paris	X50039964092	225.00	Oct 2002	Internationale Nederlanden Bank N
Bayerische Hypotheken-und Wechsel-				Landesbank Hessen-Thueringen
Bank AG	XS0045261475	150.00	Aug 2003	Girozentrale
Bayerische Landesbank Girozentrale	X50043352284	150.00	May 2003	Landesbank Rheinland-Pfalz Girozentrale
Bayerische Vereinsbank AG	XS0039265326	350.00	Aug 2002	LKB Baden-Wuerttemberg
Bayerische Vereinsbank AG	X50041634279	100.00	Jan 2003	LKB Baden-Wuerttemberg
Bayerische Vereinsbank AG	XS0042875251	100.00	Apr 2000	LKB Baden-Wuerttemberg
Chase Manhattan Corporation	XS0045534111	100.00	Sept 2003	LKB Baden-Wuerttemberg
Chemical Banking Corporation	XS0043139335	100.00	Apr 2003	Norddeutsche Landesbank Girozenti
Citacorp	X50043724680	250.00	Aug 2003	Rabobank Nederland NV
Citicorp	XS0044506045	150.00	June 2005	Shearson Lehman Brothers
Commerzbank AG	XS0039259782	250.00	Sept 2002	Holdings plc
Creditanstalt-Bankverein	X50042924489	250.00	Apr 2003	Société Générale
Creditanscalt-Bankverein	XS0045130530	100.00	Aug 2005	Suedwestdeutsche Landesbank
Crédit Local de France	XS0039170880	250.00	Aug 2002	Girozentrale
Crédit Local de France	XS0042932748	100.00	Apr 2005	Svensk Exportkredit AB
Cregem Pinance NV	XS0043612026	100.00	May 2003	Swedish National Housing Pinance
De Nationale Investeringsbank NV	XS0039389647	100.00	Sept 2002	Corporation
Deutsche Bank Finance NV	XS0039784607	300.00	Oct 2002	Toronto Dominion Bank
Dresdner Bank AG	XS0039396857	300.00	Sept 2002	Toyota Motor Credit Corporation
Dresdner Bank AG	XS0042948157	150.00	Apr 2003	WestLB Finance (Curação) NV
Dresdner Bank AG	XS0045075925	250.00	Aug 2005	Z-Laenderbank Bank Austria AG
Dresdner Bank AG	XS0049042814	100.00	Mar 2004	Z-Laenderbank Bank Austria AG
Eksportfinans A/S	XS0039673958	150.00	Sept 2002	Z-Laenderbank Bank Austria AG
Eurofima	XS0042735752	100.00	Mar 2000	Z-Laenderbank Bank Austria AG

Lasuer .	ISIN L	Issued Amount IS.5 million	Manurity
European Bank for Reconstruction &			
Development	US29874QAA22	100.00	Apr 2000
Finnish Export Credit Limited	XS0039728448	100.00	Oct 2002
International Bank for Reconstruction			
& Development	XS0042532647	100.00	Mar 1998
Internationale Nederlanden Bank NV	XS0039355234	200.00	Sept 2002
nternationale Nederlanden Bank NV	XS0043723104	100.00	May 2003
internationale Nederlanden Bank NV	XS0046250212	300.00	Oct 2005
andesbank Hessen-Thueringen			
Girozentrale	XS0041606574	100.00	Jan 2003
Landesbank Rheinland-Pfalz			
Girozentrale	XS0047878979	100.00	Dec 2005
LKB Baden-Wuerttemberg	XS0039174874	250.00	Aug 2002
LKB Baden-Wuerttemberg	X50039978639	200.00	Oct 2002
LKB Baden-Wuerttemberg	XS0041626846	200.00	Feb 2003
LKB Baden-Wuerttemberg	XS0042881655	100.00	Apr 2000
Norddeutsche Landesbank Girozentrale	XS0041275958	125.00	Dec 2002
Rahobank Nederland NV	XS0042807502	100.00	Mar 2000
Shearson Lehman Brothers			
Holdings plc	XS0044034014	150.00	June 2003
Société Générale	XS0039179329	210.00	Aug 2002
Suedwestdeutsche Landesbank			
Gi rozentrale	XS0040081464	150.00	Oct 2004
Svensk Exportkredit AB	XS0040355934	200.00	Nov 2002
Swedish National Housing Pinance			
Corporation	XS0039751267	100.00	Oct 2002
Toronto Dominion Bank	XS0039719454	1 <i>50</i> .00	Oct 2002
Toyota Motor Credit Corporation	XS0042938869	100.00	Oct 2000
WestLB Finance (Curação) NV	XS0043607026	150.00	May 2003
Z-Laenderbank Bank Austria AG	XS0039260798	250.00	Aug 2002
Z-Laenderbank Bank Austria AG	XS0042000553	100.00	Feb 2003
Z-Laenderbank Bank Austria AG	XS0042910181	150.00	Apr 2003
		-20100	

XS0043572725 150.00 May 2003

ms relating to this notice shall be directed to and copies of the Offer document containing more information relating to this Offer are available from nan Brothers International (Europe) or Georgeson 💝 Company Lid., Moor House, 119 Landon Wall, London EC2Y 5ET. Telephone +44-171-454 7100. A summary of the tendering procedure will be available on Bloomberg page reference "MSG7 COLL".

Lehman Brothers

Contact in London: Dominic Surry/Ugo Calcagnini

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De La Rue climbs to £147m

By Christopher Price

De La Rue, tha security printer, specialist paper and banknote group, yesterday reported a 13 per cent increase in pre-tax profits from £129.8m to £146.6m for the year ended March 31, 1995.

The results came in line with market expectations following a profits warning in March when the group had indicated the likely profits level. However, De La Rue's forecast of only "modest earnings growth" in the current year disap-pointed the market and the shares fell 14p to 913p.

Turnover rose 26 per cent from £592.7m to £747.1m, which included a £7.2m contribution from Portals, the specialist paper group purchased in December for £682m. Earnings per share advanced 10 per cent to 55.1p (49.9p). The recom-mended final dividend of 16p makes a total of 23p (20p). Profits at Garny, the German

By Geoff Dyer

some instances.

£50.3m (£45.9m).

Allied Colloids, the speciality

chemicals group, yesterday

announced a 10 per cent

increase in pre-tax profits

despite rises in raw material

prices of over 20 per cent in

profit margios, which remained at 14.1 per cent, and

sales improved 9 per cent to £356m (£327m). Pre-tax profits

in the year to April 1 were

over from Mr Peter Flesher as

managing director later this month, said that "we are a lit-

tle cautious in the short-term

until the raw material situation has settled down". Europe

had seen the worst of the price

rises but there were still some

Mr David Farrar, who takes

The higher costs did not dent

Allied Colloids up

10% as it beats raw

materials price rise



Jeremy Marshall (left) with Les Cullen, finance director

turer, halved to £5m - signalled at the March profits warning - on turnovar of £122m. Mr Jeremy Marshall, chief executive, said that Garny's order book had improved significantly in recent weeks. although trading conditions

remained competitive.

7 per cent at £79m (74m).

ther £52m was planned for this

Earnings per share were 14 per cent higher at 7.09p (6.23p) and a final dividend of 2.05p

(1.86p) is proposed, making 2.6p

(2.36p) for the year, a 10 per

The shares fell 21/5p to 1291/5p

& KANSALLIS-OSAKE-PANKKI

hit the performance of the Payment Systems division where profits slipped 4.9 per cent to £38.5m on sales 6.1 per cent up

In the Security Paper and Print business, operating profits rose 10 per cent to £56.1m on turnover 51 per cent ahead

£1.1m of profits on £7.2m of sales for the last eight weeks of the financial year. Mr Marshall said that the benefits of the acquisition, which was mildly dilutive on earnings, would show through strongly in the current year's results.

The disposal of non-core businesses from the Portals group was continuing and De La Rue expected to make £160m from the eventual sales. Since the March year-end, Houseman, Portals Engineer-ing and Technolog have been sold for £49.7m.

The Transactions Systems business posted a 78 per cent profits rise to £8.9m, while the group's share of profits from Camelot, the National Lottery operator, amounted to £2.4m. Mr Marshall said current orders in the banknote business were good, although not at the record levels of recent years. However, the performance of Payment Systems would depend on whether Gar-

Organic growth helps Powerscreen advance to £29m

The Bradford-based group said that sales were ahead at Powerscreen International, the all the product divisions, with Uister-based engineering paper increasing the most to £81m (67m), up 21 per cent. Polgroup, reported an 18 per cent increase in profits following sharply increased sales of its lution control sales were ahead industrial screening and stone crushing equipment. Capital expenditure more

than doubled to £60m (£26.7m), The shares rose 6p to 309p including the £27m expansion after it announced pre-tax profits up from £24.6m to £29m on turnover 61 per cent ahead at of the manufacturing facility at Cleethorpes for the coatings business, which had been beld £196.8m (£122.5m). back by lack of capacity. A fur-

The improvement was fuelled by organic growth, although the sales were flattered by a £25.2m maiden contribution from Benford, the construction equipment manufacturer acquired from BM Group for £17.1m last year. "Our existing businesses

have been helped by the growing trend towards recycling

building materials and extracting aggregates from land fill sites," said Mr Barry Cosgrove, finance director.

That demand belped lift profits on continuing operations from £24.1m to £28.8m. The screening side contributed £19.6m (£17.1m), although margins narrowed from 25 per cent to 21.4 per cent.

Mr Cosgrove also halled e buoyant performance by the materials handling division, where cost-cutting at Benford and buoyant demand for agricultural equipment pushed profits up 67 per cent to £4.55m (£2.72m). The division is expected to

grow still faster following the signing last month of a £50m manufacturing deal with John Deere, the world's largest agricultural equipment dealer.

QUNION BANK OF FINLAND

MGM bid

By Patrick Harverson

may raise

Virgin

Virgin, the leisure group, is believed to be ready to raise its offer for MGM Cinemas, the cinema chain which is being auctioned by Crédit Lyonnais, the state-controlled French

Virgin would not comment on the announcement from the government yesterday that a rival bid by media group Carlton Communications would not be referred to the Monopolies and Mergers Commissi However, a source said Virgin was considering making e last-minute change to its offer hav-ing persuaded a partner to join

Virgin and Carlton are among at least three groups competing to buy MGM Cinemas, the UK's largest chain Rank Organisation, the leisure group which owns the Odeon chain of cinemas, has also put in an offer. However, if it succeeds, analysts believe the group would have to divest some of its cinemas to earn approval from the MMC.

Yesterday S.G. Warburg, the merchant bank handling the sale of MGM Cinemas for Crédit Lyonnals, said no deci-sion had been made and the action was "proceeding as normal." The bank added that Credit Lyonnais was standing by its original statement that it would like to conclude the

auction by the end of June.
Details of the various offers remain sketchy, but Rank is understood to have tabled e £190m-plns bid, while Carlton's offer is thought to be of a similar size. The Virgin bid is believed to be the smallest of

Select purchase

Select Appointments (Holdings) has acquired 82 per cent of Ideo, a recruitment company based in Germany, for DM2.9m (£1.29m) cash. ideo had pre-tax profits of DM309,000 on sales of DM13.1m in 1994.

Meyer advances 24% but warning hits share price

Construction Correspondent

A warning of lower building material sales and timber prices knocked almost 4 per cent off the valua of Meyer International shares yesterday. A statement by Mr John Dobby, chief executive, that "the current financial year has not started well" took the gloss off a 24 per cent rise in pre-tax profits to £51.6m (£41.6m) in the year to the end of March. Meyer's shares duly fell 12p to

Mr Dobby said volume sales at Jewson, the UK builders' merchants were 4 per cent lower than in April and May last year, although the cash valua of sales was about the same, reflecting previous price

The company's British and Dutch timber business, bow-ever, had been hit by sharp fluctuations in their price of construction timber.

The weighted average price of the group's UK timber prod-

re price relative to the FT-SE-A

ucts had declined by 9 per cent since December, almost wiping out a previous increasa of 10 per cent, since April,

Apr ' 1904

In the Netherlands, white softwood prices had fallen by 15 per cent since last autumn. Sales also had fallen due to a building strike in the Netherlands during March and April. said Mr Dobby.

of the UK housing market was inhibiting sales of building materials, although improve-ments in efficiency, following-management changes at Jew-son, should help underpin mar-

Profits at Jewson rose by 12 per cent to £23.2m (£20.7m) with turnover increasing by 10 per cent to £466.4m (£425.1m). Forest products which imports and distributes timber, wood products and laminates in the UK, US and Canada, increased operating profits by 18 per cent to £23.1m (£19.6m).

Profits from the Netherlands. where the private housing market has been strong rose from £13m to £14.4m. An excap-tional loss of £3.4m on the sale of three German businesses as partly offset by profits of £1.4m (£300,000) on sale of prop-

Interest charges fell from £8.9m to £6.8m belging earnings per share to rise from 24p to 28.4p. The final dividend is increased to 7.3p (6.6p) making

Racal shares fall despite 27% rise

Tough trading conditions at its data communications division and a warning of a profits shortfall from its radio communications business undermined a 27 per cent rise in pre-tax profits at Racal Electronics. The shares fell 8p to 250p. Profits before exceptionals

rose from £46m to £58.3m, with turnover from continuing operations advancing 7 per cent to £938m. With the inclusion of 1994's £19.6m goodwill write-down, pre-tax profits more than doubled from £25.38m. Turnover including

rere 13.65p (5.47o).

National Lottery operator. Although Camelot made profits of only £10.8m and Racal's

discontinued operations increased 4 per cent to £950.2m. A final dividend of 3.25p is

proposed, making a total 5p (4.25p). Earnings per share The data communications

business showed a quadrupling of profits to £14.3m, although

share is just 22.5 per cent, the company has capitalised its National Lottery operator, boosting first year profits.

Without that, data communications profits rose 63 per cent to £5.7m, boosted by a strong performance from the Network Services division. Turnover rose 3 per cent to £384,2m. Within that, revenues from data products were 25 per cent

short of expectations at £310m, Radio communications increased profits 15 per cent to \$20.5m on turnover 24 per cent higher at £179.4m. The com-pany warned of "reduced prof-itability in the current year".

In the defence business, the company said the purchase of Thorn Sensors on March 31, for £18.9m. would result in e provision of £22m for 'reorganisa-tion costs and contract liabilities which will result in a goodwill write-off of some tion from Camelot, the executive, said he expected the division to make £10m in the current year on turnover of

Sharp recovery at Apollo

By Paul Cheeseright, Midlands

Aposto Metals, the Birmingham-based metals processor and distributor, had a sharp recovery in its first half, with pre-tax profits of £1.31m compared with e loss of £219,000 in the same period of 1993-94 and profits of £510,000 in the second half.

Sales reached record levels in the six months to March 31 at £26.86m (£15.24m). Although the rise came partly because of higher metal prices, there was an improved performance across all sections of

Apoflo's figures have also been lifted by the acquisitions last November of Aviation Metals, based in Milton Keynes, and Krifinn in Fin-

The 1993-94 first-half perforcosts of reorganisation in Ger-

Earnings per share were

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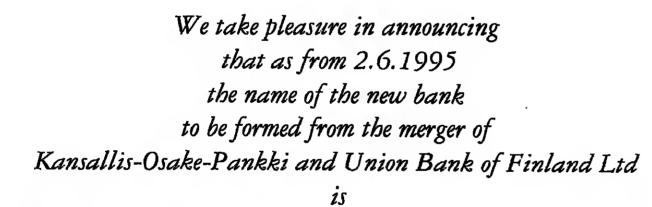
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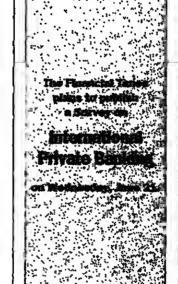
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TENDER NOTICE



Merita Bank Ltd



market is estimated at \$4 Trillion and growing. How has deregulation and strong economic growth in a wide range of countries changed this business in recent years?

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UK GOVERNMENT ECU TREASURY BILLS

For tender on 13 June 1995 The Bank of England announces the Issue by Her Majesty's Treasury of ECU 1,000 million nominal of UK Government ECU Treasury Bills, for tender on e bid-yield basis on Tuesday, 13 June 1995. An additional ECU 50 million nominal of Bills will be allotted directly to the Bank of England for the account of the Evenance Equalitation. of England for the account of the Exchange Equalisation

Tha ECU 1,000 million of Bills to be issued by tender will be dated 15 June 1995 and will be in the following

ECU 200 million for maturity on 13 July 1995 ECU 500 million for maturity on 14 September 1995 ECU 300 million for maturity on 14 December 1995

3. All tenders must be made on the printed application on the printed application from sevalleble on request from the Bank of England. Completed application forms must be lodged, by hand, at the Bank of England, Customer Settlement Services (formerly Securities Office), Threadneedle Street, London not later than 10.30 a.m., London time, on Tuesday, 13 time 1405. June 1995. Payment for Bills allotted will be due on Thursday, 15 June 1995.

 Each tender at each yield for each meturity must be made on e separate application form for a minimum of ECU 500,000 nominal. Tenders above this minimum must be in multiples of ECU 100,000 nominal.

5. Tenders must be made on a yield basis (calculated on the basis of the actual number of days to maturity and a year of 360 days) rounded to two decimal places. Each application form must state the maturity date of the Bills for which epplication is made, the yield bid and the amount tendered for.

6. Notification will be despetched on the dey of the tender to applicants whose tenders heve been accepted in whole or in part. For applicants who have requested credit of Bills in global form to their account with ESO, Euroclear or CEDEL, Bills will be credited in the relevant systems egainst peyment. For applicants who have requested definitive Bills, Bills will be available for collection at Customer Settlement Services, Bank of England efter 1.30 p.m. on Thursday, 15 June 1995 provided cleared funds have been credited to the Bank of England's ECU Treasury Bills Account No. 59005518 with Lloyds Bank Pic, Bank Relations, St George's House, PO Box 787, 6-8 Eastcheap, London EC3M 1LL. Definitive Bills will be available in amounts of ECU 10,000, ECU 50,000, ECU 100,000, ECU 500,000 and ECU 10,000,000 nominal.

7. Her Majesty's Treasury reserves the right to relect any 6. Notification will be despetched on tha dey of the

Her Majesty's Treasury reserves the right to reject any or part of any tender.

8. The arrangements for the tender are set out in more detail in the information Memorandum on the UK Government ECU Treasury Bill programme issued by the Bank of England on behalf of Her Majesty's Treasury on 28 March 1989, and in supplements to the information Memorandum. All tenders will be subject to the provisions of the information Memorandum (ea supplemented) and to the provisions of this notice.

9. The ECU 50 million of Bills to be allotted directly to the Bank of England for the account of the Exchange Equalisation Account will be for maturity on 14 December 1995. These Bills may be mede evailable through sale and repurchase transactions to the market makers listed in the Information Memorandum (as supplemented) in order to facilitate settlement. order to facilitate settlement.

10. Copies of the Information Memorendum (and supplements to it) may be obteined at the Bank of England. UK Government ECU Treasury Bills are issued under the Treasury Bills Act 1877, the National Loans Act 1968 and the Treasury Bills Regulations 1988 as

Bank of England 6 June 1995

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Wednesday 7 June 1995

Economic reforms prompt hopes of renaissance

For centuries, Armenians have endured tyranny and deprivation. Government policy could reward their stoicism but only, says Chrystia Freeland, if married to a commitment to democracy

the Armenian people.
Since the fifth century, their country has been almost constantly subject to foreign domination. And, in 1915, they were the victims of genocide when Ottoman Turkey massacred an estimated one million of its Armenian inhabitants. Even the natural world has been hostile: the earthquake of 1988 devastated the country, killing 25,000 people and caus-ing millions of dollars worth of

Over the past four years, while the entire former Soviet Union has been struggling to cope with the economic and political legacy of communism, Armenia has laboured under a double burden. In addition to the massive problems of the post-communist transition, it has endured an economic blockade from Azerbaijan and Turkey which has led to an energy crisis so acute that elec-tricity is available in most homes for only one or two hours a day.

But Armenia's long history of adversity has proven to be a useful preparation for its current difficulties. Ordinary Armenians have adapted to the severe energy shortage with remarkable cunning, rigging up small power generators in their homes and even running television sets off automobile batteries.

Necessity is the mother of invention, but the cheerful ingenuity with which Armenians have coped with one of the most severe economic crises in the former Soviet Union is also animated by the deep-seated sense of national identity they have nursed through 15 centuries of foreign rule. From the long-range his torical perspective that comes naturally to most Armenians, their economically devastated and isolated country is actually in the midst of one of the romising opportunities for a national renaissance that

it has experienced in more than a millennium. For the first time in centuries, Armenians control their own, sovereign state, albeit one which, in the eye of the Armenian nationalist, occupies only a fraction of the true national bomeland, Moreover, Armenians, who, since the fifth century, have tended to be on the losing side of territorial wars with their neighbours, have managed to wrest

Nagorno-Karabakh, a mountainous enclave within Azerbaijan, from the control of their ancient enemies, the ethnically Turkic Azeris.

The Armenian government scrupulously disavows any desire to incorporate Karabakh into greater Armenia. But the fact that the territory is now controlled by its Armenian res-

idents, rather than Bakn, is felt to be Armenia's great national achievement of the past four years, and one for which most Armenians are cheerfully willing to endure far more than electricity blackouts.

Slowly, this Armenian stoicism for the sake of national survival is being rewarded. The brightest star on the horizon is the economy. The lack of electricity and hot water some times obscures the unexpected fact that, in many respects, Armenia is one of the models of post-communist economic reform in the former Soviet

Armenian officials explain, the economic blockade has acted as an unlikely catalyst for reforms, forcing Yerevan to adopt radical economic measures that more prosperous former Soviet republics could afford to delay.

As Mr Bagrat Asatrian, the chairman of Armenia's Central Bank, explains: "Maybe the fact that we have no natural resources is our salvation. We joke that if an oil well were to be discovered we would have to cover it up quickly. Our peo-ple today understand that, in the conditions which God has given us, our republic's only way to survive is through lib eral economic policies."

Armenia, the energy blockade exacerbated the sharp decline in output experienced by all of the former Soviet republics following the collapse of communism. GDP fell by 52 per cent in 1992 and dropped another 15 per cent in 1993. But last year it grew by 3 per cent and government officials expect it to increase by at least 5 per cent

Sceptics point to the fact that Armenia's robust new economic indicators are a statistical fluke born of the country's depressed starting point. But the gentle upturn in the economy is also the result of the radical economic reforms that the government has pursued since 1991, when Armenia for-

mally declared its independence from the Soviet Union. The first radical move came in 1991, when the government implemented a tough land privatisation programme. Land privatisation, which has put more than 80 per cent of agricultural land in the hands of private farmers, who are now freely able to buy and sell their holdings, has acted as an important linchpin for the rest

Armenia's economic

In other former Soviet repub-

lics, such as Russia, the unre-

formed agricultural sector is a milistone, pushing up inflation with its demands for continued government subsidies and serving as an important powerbase for anti-reform communist politicians. But Armenia's pioneering land privatisation has transformed the country-side into one of the most important sources of support for market reforms and, by weaning farmers off government subsidies and making them more efficient, has helped Armenia to survive the

energy blockade. "During the most difficult times which our republic endured, the energy crisis and the blockade, I think we were saved from famine by land privatisation," Mr Asatrian says.

The second important achievement of Armenia's economic reformers was the result of circumstances beyond Yerevan's control. Until the autumn of 1993, Armenia was a part of the rouble currency zone, and like other republics within the rouble's orbit pursued spendthrift monetary and fiscal policies. But, in November, 1993, Russia's decision to exclude other republics from the rouble zone forced Armenia to introduce its own currency, the dram, and independently set its monetary and fiscal course.

After a shaky start, the dram has proven to be a success. Since May, 1994, the nominal exchange rate has been stable, and the dram bas sharply appreciated in real terms over the same period. The govern-ment's battle with inflation, which averaged 46 per cent a month in the first quarter of 1994 but was down to 1.2 per cent in March, bas been an equally important achievement. Oil-rich Russia, strug-gling with inflation of nearly 18 per cent a month at the beginning of this year, can still only dream of the macro-economic stability Yerevan has

already attained. The one sphere in which Armenia's economic reformers have lagged has been industrial privatisation, but the government has pledged to implement a mass privatisation

programme this year. However, Armenia's impressive internal macro-stabilisation is likely to have little real significance unless it is accompanied by the more difficult achievement of a rapprochement between Armenia and its largely bostile or unstable neighbours. Endowed with scarce natural resources, landlocked Armenia is unlikely to develop very much beyond a subsistence economy, no matter how skilled the economists in its cabinet, unless its diplomats can negotiate an end to

cal situation is improving. "Armenia occupies an important geopolitical crossroads and, as a result, a lot depends

Government officials are

hopeful that, slowly, the politi-

the economic blockade.

on our relations with our neighbours," says Mr Armen Yeghiazarian, minister of the economy and a member of the government troiks that has masterminded the economic reforms. "But there are some signs, unofficial ones, that our relations with Turkey and Azerbaijan are improving.

The past year has brought some encouraging signals that give weight to the official optimism in Yerevan. The block-ade of trade and transport routes through Azerbaijan, traditionally Armenia's principal avenue into the world, was triggered by the war over Nagorno-Karabakh. More than a year ago, that battle settled into an uneasy stalemate, with local Armenians in control of the disputed enclave and large swathes of Azeri territory between Karabakh and Armenia occupied by Armenian forces. Azerbaijan is, naturally, little pleased with this status quo, but more than a year ago the warring parties agreed a ceasefire that has generally been honoured, despite

the absence of neutral peacekeeping forces. Yerevan is hopeful that the next stage will bring an incremental lifting of Azerbaijan's blockade, perhaps in exchange for some of the occupied land beld by Armenian forces. The delicate detente between Armenia and Azerbaijan has also slightly eased relations between Yerevan and Turkey, which closed its border with Armenia at the height of the Rarabakh dispute. Turkey has already opened its air corridor to Armenia and, thanks to a US Armenian lobby, is under gentle pressure from Washing-

ton to lift the blockade further. rmenia's isolation has been further eased by the gradual political stabilisation in neighbouring Georgia. Georgia is an important transit route for energy, particularly natural gas, and civil war there compounded the difficulties Armenia faced because of Azerbaijan and Tur-

key's blockade.

But one of the most promising windows on to the rest of the world for Armenia is Iran. Nothing better exemplifies Armenia's unhappy geopolitical destiny than the fact that Iran, one of the pariahs of the western world, is Armenia's most stable, reliable and friendly neighbour. The two countries have an ancient history of good trading relations. In an effort to break out of its geographic isolation,

Armenia, whose foreign minister speaks fluent Persian, has been nursing closer economic links with Iran Iran is now second only to Russia among Armenia's trading partners,



most reliable way out of the

energy blockade. Armenia's other unlikely saviour is Medzamor, a nuclear power station which the government hopes to restart within the next few weeks. The two water-cooled reactors et Medzamor were shut down in 1989, after the 1988 earthquake led Armenian public opinion to question the wisdom of operating a Soviet-constructed nuclear power plant in one of the world's most seismically precarious regions. But four cold winters have led Armenians to reconsider and, to the consternation of western observers, one of Medzamor's

reactors is scheduled to be back on line by the autumn. Armenians, who argue that the west has been quick to complain about Medzamor but has rebuffed most of Yerevan's

requests for technical assis-

tance, are unsympathetic to western worries. "It is easy to sit in Brussels and say the Armenians should not start up their nuclear reactor because it is not safe enough," says Mr Vahan Papazian, Armenia's foreign minister. "But here in Armenia we have a terrible energy crisis and we are not

willing to endure another frozen winter. But if Armenia's ability to cope with some of the most difficult economic circumstances facing any former Soviet republic is an uplifting lesson in the uses of adversity. political trends in the republic

are more disheartening. Armenia has long prided itself on being an oasis of democracy and stability in a region known for civil war and authoritarian politicians. But, as it prepares for July parliamentary elections, the repub-

lic's first, post-communist bal-

lot, it has begun to display the undemocratic inclinations of its neighbours.

The most worrying development is the government's suspension of one of the most popular, emigré-based opposition parties, popularly known by its Armenian shorthand as Dashnak. The crackdown on the Dashnaks, and the closure of many opposition newspapers, have raised serious doubts about Armenia's democratic

credentials. Equally worrying is a pro-posed constitution that will be decided by a popular referendum at the same time as the parliamentary elections. Western constitutional experts say the draft, which government officials are confident will be passed, will introduce the most powerful presidency anywhere

in Europe. Even members of the govern-

ment agree that Armenia has

some way to go before it becomes a fully democratic state. "Armenia is certainly not a model of democracy," says Mr Yeghiazarian. "Armenia is a country which is trying to become democratic,

and that's not something you can do in four years." Since 1991, Armenians have responded to severe external challenges with a remarkable national resilience and commitment to tough economic reforms. As the economy slowly improves, and the external threats begin to recede. Armenia's most dangerous temptation is to drift into the type of euthoritarian political system that appears to have lured many of the former communist states. Armenia has a long history of resisting exter-nal enemies, but over the coming year Yerevan's priority

The republic in brief: key facts

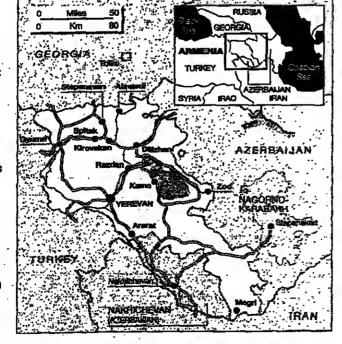
■ Government

Ruling party: Armenian National Movement (ANM) Head of state: Mr Leyon Ter-Petrosyan, president Head of government: Mr Brant Bagratian, prime minister

- Main cities Yerevan (capital); Gyumri; **Kirovakan**
- **■** Economic indicators Real GDP growth %: 2-3 (1993/94) Average wage in Yerevan: \$4.56 per month (first quarter
- Area and population Area (sq km): 29,000 Total population: 3.7m (approx)
- Main languages Armenian (official); Russian (2 per cent); others (2 per cent)
- Ethnic composition Armenians (93 per cent); Kurds (2 per cent); Russians (2 per cent); others (3 per cent)
- Armenian Orthodox (94 per cent); other (6 per cent)

Religion

Currency Dram (since November 1993). Exchange rate (June 5 1995): £1



Working hours

Offices: (Mon - Fri) 0900 - 1800 (appointments best between 0900 and 1000) Shops: (Mon) 0800 - 1900, (Tues - Sat) 0800 - 2100

Public holldays Dec 31, Jan 1 - 2 (New Year) Jan 6 (Christmas) April 24 (Day of remembrance of the victims of the genocide) May 9 (Peace day)

May 28 (Celebrates declaration

of first republic, 1918)

Sep 21 (public holiday) Dec 7 (Day of remembrance of the victims of the earthquake)

■ Climate The average winter

temperature in Yerevan is -4°C, while summer averages 25°C. Annual rainfall in Yerevan averages 33cms but is much higher in mountain regions.

■ Time Three hours ahead of Greenwich Mean Time

Main ministries Ministry of the Economy

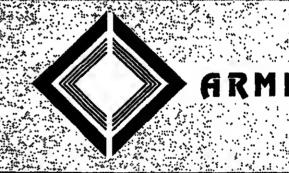
375010 Yerevan, Republic Sq 3.

Tel: 2-527-342, 567-621 Ministry of Finance: 375010 Yerevan, Melik-Adamyan St 1. tel: 2-523-745, 527-082 Ministry of Foreign Affairs: 375019 Yerevan, Marshal Baghramyan St 10. Tel: 2-520-238 Ministry of Trade: 375009 Yerevan, Teryan St 69. Ministry of Light Industry: 375033 Yerevan, P Kochar St 4. Tel: 2-226-500 Ministry of Transport: 375015 Yerevan, Zakyan St 10. Tel: Ministry of Agriculture: 375010 Yerevan, Republic Sq. 3. Tel: 2-524-641 Ministry of Construction: 375010 Yerevan, Tumanyan St 5. Tel: 2-589-080

Dialling code Since May 27 Armenia has had direct telephone links via BT

and an Intelsat satellite with more than 50 countries worldwide, replacing the previous routeing via Moscow. The new code for reaching the country is 00 374 (formerly 00 7 885)

Sources: Europa World Yearbook 1994, Statesman's Year-Book 1994-5; ECWD Kaleidoscope, Jan 1995; EIU Country Profile 1994-95; EIU Country Report, 1st Quarter 1995, World of Information,



ARMENIA TEL. 7(8852) 565873

in order.

- Joint stock company of a closed type with share capital partially bought out by the government
- Was established in 1992 and within that short period of time became one of the leading banks of the Republic of Armenia.
- Provides a wide range of services:
 - on international settlements through the wide network of correspondent banks in the USA, Great Britain, France, Japan, Germany, Switzerland, Australia, Yugoslavia, Latvia, Iran, Turkey and CIS countries: Russia, Ukraine, Kazakhstan, Turkmenistan, Georgia
 - on attracting and allocating of investments in national and foreign currencies
 - on currency operations
- The currency of the balance sheet has been increased 4 times within the year, the share's real value is equivalent to USD 1,145.
- The outside funds have the tendency to strong growth and make the equivalent of about USD 5,0 million
- The credit investments are equivalent to about 1,5 million in USD
- Is pursuing the policy on approaching the interest rates and commission fees for banking services close to the international standard

Clients can reply with confidence on quality and efficiency of services provided.

rmenia is more likely to

be held up as a sad example of economic

disaster than as a model of suc

cessful market reforms. The

truncated branches of the once

shady trees in downtown Yere

van, the Armenian capital

bear mute testimony to the hard times Armenia has endured since the collapse of

difficult winters of 1992 and

1993 as Armenians first strug-

But the economic blockade, imposed by Azerbaijan and

Turkey as part of the conflict over the disputed enclave of

Nagorno-Karahakh, now con-

trolled by local Armenians, has

obscured the radical economic

reforms which Yerevan began

in 1991 and which have today

taken the country a long way

down the path of transition

from communism to a market

Armenia's boldest reform.

and one that has yet to be

duplicated in more prosperous

former Soviet republics such as

Russia or Ukraine, is a land

privatisation programme that

was implemented in the spring

of 1991. The programme, which

Armenians hope will serve as

model for other former Soviet

republics, was both simpler

and more radical than many of

the partial land reform plans

that are now being tested at

regional level in other parts of

Collective farms were

the former USSR.

the Soviet Union in 1991. The trees were danuded of their loftiest branches in the

lighting a luxury.

Sound macro-economic policy is making up for some of the ravages of war, writes Chrystia Freeland

Blockade belies increase in stability



ered in their town's central square and the head of each household drew a lot. Each lot corresponded to one of the parcels of land and hecame the family's new, private farm.

Another important development, which comes fully into force this year, is the introduction of a new system of agricultural taxation.

Taxes are based on the potential production of the arable land owned hy each farmer. This not only helps to compensate for the inevitable inequality hetween households that received coveted lowlands fields rather than less arable mountain plots, but also discourages land speculation by taxing idle fields as heavily as those that are being farmed.

divided into as many parcels as there were households in the As Mr Armen Yeghiazarian, collective. Then, in the spring minister of the economy, explains, "the land taxation of 1991, throughout Armenian villages, peasant families gathsystem gives farmers an incen-

Dram exchange rate

tive to sell their land if they cannot farm it profitably". The programme, however, has also had its limitations and

built-in inequities. For the first three years, there was a moratorium on seiling the land, though it has now expired. Moreover, the land privatisa-tion system henefited some groups more than others. Tractor drivers, for example, did particularly well, being eligible not only for the land lottery but also for ownership of the collectives' tractors, which were divided among them. Today, this is proving to be a lucrative perk, as they are able to hire out the services of their tractors to less lucky neigh-

But, overall, Armenia's early reform of the agricultural sector, which has proven to be the area most resistant to market transformations in other former Soviet republics, has served as an important underpinning of the country's broader economic reforms Farmers in other post-communist countries, such as Russia and Ukraine, have been one of the most stubborn barriers to macro-economic stabilisation programmes because of their mands for continued government subsidies. By contrast, Armenia's newly created rural middle class is one of the strongest supporters of reforms and one of the most committed opponents of the communist and socialist parties.

By giving land to the peasants we created a rural bourgeoisie," says Mr Yeghiazarian. The people are afraid that the communists might want to take away their land and so they support the current government and its reforms.

Month-on-month % change 50 40 30 20

agrarian reform in the spring of 1991, Armenian economic reformers were forced to slow down as their country became preoccupied with the war for Nagorno-Karahakh. Russie's decision to exclude former Soviet republics from the rouhle zone in the autumn of 1993 was a salutary shock.

Armenia was initially unprepared to meet the challenge of running an independent mone

tary and fiscal policy. "When Russia unilaterally introduced its own currency in November, 1993, we obtained so called independence, but at first it brought us problems, rather than freedom," explains Mr Bagrat Asatrian, chairman

of Armenia's central bank. The first few weeks following the introduction of the dram, Armenia's new pational currency, were disastrous. The Central Bank was technically

unprepared, the country had almost no hard currency reserves, the economy was in the throes of hyper-inflation, and the most severe period of the energy crisis had begun. In these inauspicious circumstances, the Central Bank opted to fix the exchange rate of the dram against the dollar, a policy that survived only for

ut In January, 1994. Mr economist, assumed his new duties as chairman of the Central Bank and began to turn the situation around. His first tasks went beyond tha standard remit of a central banker, restoring lighting and heat to the Central Bank offices. Mr Asatrian then undertook a more fundamental reform, sacking the hank's



Mr Armen Yeghiaza

"Although I am not a revolutionary by nature, I took this first revolutionary step," says Mr Asatrian, whose academic past is reflected in his mild. professorial manner.

The internal reorganisation of the bank and Mr Asatrian's insistence that he be given independence from the govern-ment and cabinet allowed him to pursua a tough monetary course, which, hy the spring of 1994 had stabilised the dram and hrought inflation down to an average of 3 per cent a

month. For Armenia's old industrial guard, which had enjoyed bailouts from the Central Bank, Mr Asatrian's regime was an unwelcome shock.

During the first month, factory directors and their chief accountants called me every day, asking for cheap credits," Mr Asatrian says, "But, by the

second month, the calls came less often, and only calmet ministers dared to pick up the telephone. Now, as stabilisa-tion has taken hold, I only get one or two calls a month.

Mr Asatrian also imposed the type of strict constraints on commercial banks that are currently the subject of an intense political hattle in Russia. Last year, he increased the hank 40 times. (The minimum had previously been a mere \$2,500 and the change forced a third of Armenia's commercial banks into receivership.)

"In the past, for the price of a used car you could set up a bank," Mr Asatrian says. He also sacked 80 per cent of

the government regulators of the commercial banking sector, hinting that their corrupt practices had allowed pyramid schemes thinly disguised as commercial banks to proliferate in Armenia.

Mr Asatrian's austere mone tary and regulatory policies, coupled with the government's fiscal restraint have made Armenia one of the former Soviet Union's unlikely models of macro-economic stabilisa-

The government hopes this year's mass privatisation programme, and a stand-by loan. which it expects to receive from the International Monetary Fund sometime this summer, will help to make Armenia's propitious economic

starting point sustainable.
But Mr Asatrian and his reformist colleagues in the cabinet realise that until Yerevan's diplomats manage to negotiate an end to the blockade, long-term investments are unlikely to flow into Armenia no matter how sound its macro-economic strategy.

Kanaker Alaminam Factory main production: Aluminum ingots Aluminum bands Goffered sheets Profiles/brackets made of aluminum AD31 alloy Aluminum sheets Aluminum foil of different thickness for production and household Kanaker Aluminum Factory Yerevan, Armenia

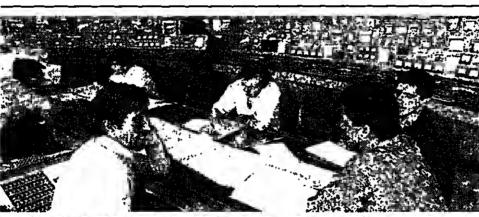
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he hope for Armenia's successful transition to a market economy rests on manufacturers such as Tosp, a textile factory housed in a single compound in Yerevan's

industrial district. Known across the Transcaucasian country for its white underwear and colourful T-shirts. Tosp was among the first ten state companies privatised last month under the voucher sell-off scheme. Workers received a 20 per

cent stake for free and then hought another 16 per cent with their vouchers, which have a face value of 20,000 drams. As in Russla, the vouchers are freely transferable and there are no limits on

foreign participation. The com-pany's auction, done over two months, was fully subscribed and a foreign investor, an Indian of Armenian descent,



The high-tech Transistor project is short of funds

New factory in crisis

Beyond Yerevan's seven hills, the Transistor semi-conductor factory at Ashtarak is an unfinished monument to modernisation in the former Soviet Union. As Boris Yeltsin stood astride the Soviet tanks in front of the Russian White House in 1991, construction on the large Soviet project stopped - just before the last rouble was due to arrive from

Today, the managers at the state-owned factory are desper-ately trying to raise outside

Armenian Airlines

financing to finish the joh and secure a niche for Armenia as a high-tech manufacturing centre in the old Soviet bloc.

Work on the Ashkarat facility - about 30km from Transistor's dilapidated semi-conductor plant in Yerevan - began in the early 1980s. About \$100m was invested, including \$55m worth of western machinery, according to Haikaz Bakhshet-sian, the English speaking first deputy director of Transistor. The intention was to create an oligopolistic supplier of high powered transistors and power Integrated circuits often used

in electric motors. On the plant's 20 hectare facility, 4,000 sq ft of clear room space houses Swiss, US and Japanese machines. One hundred and fifty workers keep the plant impeccably clean Nothing has disappeared in four years. Wellman furnaces, a Balzer evaporator and a German-made electron beam stand side by side, their war-ranty tags still attached.

"It's fantastic," says Kenneth Clark, managing director of the UK-based integrated Tech-nologies, which worked on the project between 1988 and 1991. "Ashtarak is one of the leading factories in the whole of Europe. The machinery is all first class. Semi-conductors are a high priced commodity and the world market exists."

Ashtarak's good equipment is complemented by a potentially capable work force. The University of Armenia has a faculty that is well-suited to

train specialists in the sector.

Ashtarak hopes eventually to employ 1,500 people.

The company's business plan, presented to the European Bank for Percentuation. pean Bank for Reconstruction and Development and western commercial banks, calls for an additional investment of \$20m to fund additional equipment, install a gas system and cover running costs for the first three years of operation. Profit margins are expected to reach 40 per cent, on the strength of exports to ex-Soviet republics

and other countries outside the former Communist bloc. But, even when Armenia offered to issue a bond or put the company assets against the loan,

no bank was interested. Clark, who helps co-ordinate the financing effort in order to get back money his company is owed for the initial technical work, guesses ignorance about Armenia and worries about the high risk deter commercial banks from lending the mon-ies. But he is now "very hope-ful" a US trust fund, which he declined to name, might help.

Poor financial services are just one deterrent to investment in Armenia, although in March the UK's Midland Bank announced plans to open the first office of a western bank in

Like many Armenian compa-nies, Transistor faces serious short-term problems. Russian buyers have not paid all their bills and the stock piles are full with orders significantly lower than in past years, forcing the plant to down size to 800 workers after employing 1,200 in the days of the Soviet Union. The new plant wants to try to tap the western market but it still needs the old buyers, who are hampered by the economic downturn across the former

In the drive to find new cli-ents, the marketing depart-ment will be the first to be overhauled and, according to Bakhshetsian, the entire com-pany may eventually be priva-tised.

A high-tech operation also needs a steady and reliable electricity supply. Gagik Khachatryan, director of the Ashtarak factory, helieves Armenia must restart its closed nuclear reactor, built on a seismic fault line, to relieve the current electricity short-ages. If not, he says, Transistor will build its own mini power plant on the stream that runs just behind Ashtarak on the

dusty Armenian plateau. Matthew Kaminski

Foreign aid for textile plant

Matthew Kaminski on Indian investment in clothing company, Tosp

took a 30 per cent share. "We have very good factories

that do not need very much investment," says Pavel Ghaltakhchian, chairman of the state privatisation board, noting that Armenia plans to sell another 50 companies in the next two months and ambitiously wants to offer 900 large-

and medium-sized enterprises by the year's end. But, he adds, Armenia has opened the privatisation proattract foreign investment: 'Our state policy is aimed at bringing in foreign investors. The more foreign capital, the richer our government will be and the better off our country

Improvisation has helped the company to stay afloat in Armenia's difficult husiness environment, but it needs outside help.

An energy crisis, transport difficulties and raw material shortages mean that only 160 of the 870 employees (down from 1,500 in the 1980s) are needed and production stands at a fifth of the output in the last years of the Soviet Union.

Tosp, however, has fared bet-

ter than most. An on-site generator helps power the compa-ny's relatively modern and western-huilt machinary, including an Italian stabiliser. A west German production line was installed in 1989 hut has never been turned on because output must reach 80 tonnes per month for it to be efficiently used. Unlike most Armenian factories, Tosp rarely suffers electricity power cuts. This is because of its participation in Armenia's clearing payment system for Turk-men gas. Tosp supplies \$1.2m in textile products each year.

with an assured market in the central Asian state, as part of a barter deal for gas deliveries. This not only means that, unlike many of its counterparts in the former Soviet Union, the company has managed to avoid running up elec-tricity arrears, but also that it is owed \$360,000 by the Arme-

nian government. The biggest problem is the venture with Avir of Iran to supply cottons has fallen apart, hut Tosp recently signed an agreement with an Indian company to import textiles. Yans Ltd. founded by the Indian investor who took a 30 per cent stake in Tosp, has opened a credit line to fund the imports from India, delivered overland

through Iran.
"The diaspora is very important for us," says Suren Bekir-sky, deputy director of Tosp, because most companies find local hank credit, offered at high interest rates, prohibitively expensive and cannot fund the overhaul of the industrial sector."

nce goods have been produced, the old Soviet wholesale network provides a good outlet, if efficient transport means are found. "We have a ready mar-ket of 240m customers." Bekirsky says, referring to the other ex-Soviet republics. The company currently flies its goods. made from 20-25 tonnes of cotton per month (down from 110 tonnes in 1991), across the former Soviet Union.

Increasing output will not be easy. The cost-per-unit break-down highlights the restructur-ing task ahead. About 40 per cent goes in financing costs, such as interest rates, underscoring the pressing need for working capital that foreign investors such as Yans might be able to provide. Salaries and benefits make up another 20 per cent.

A Polish business consultant has told Tosp that staff costs should be halved. But the proposal is not likely to find favour with the current management. Bekirsky's mother, Rimma, the general director since 1977, angrily rejects any suggestion that the workers currently underemployed ought to be laid off. "Why are you so cruel?" she asks. "If we'll raise output to 200 tonnes per month. We should hire more workers, not send our girls out into the streets."

An Armenian raised in Syrie and educated in India, Avadi Janiachian, the director of Yans, says investors must be patient and understand the strong communal traditions

that shape Armenian "psychology, and outlook".

After losing \$300,000 in commercial ventures, Tosp is Yans's first foray into manufacturing in Armenia. Janiachian warns that large Armenian companies are "very protective" of employees, but adds that the first sharehold-ers' meeting will consider restructuring. The factory was attractive not for its management hut for its "good machin-ery" and lack of "looting", he

Janiachian, a 33-year old who has married a local Arme-nian and plans to raise his children in the republic, only smiles when reminded about the company's and the coun try's various problems. 'I feel sorry for the Armenians abroad who are not participating in this process," he says. "We've lost a lot in three years, but we still believe a day will come when the sun will shin



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ARMENIA 3

The president is taking a tough stance in the race for power, says Steve Levine

Hard line on diaspora groups

Mr Levon Ter-Petrosyan, the Armenian president, is a former college professor with a passion for chess and languages who has impressed many foreign visitors as a steady, Western-minded leader in an unruly sea. But politics can test anyone's image and a month before parliamentary elections, diplomats ara starting to complain about some Soviet impulses in the

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Western diplomats have crit-icised Mr Ter-Petrosyan for suspending a leading opposition political party, which he branded "a terrorist and fascist organisation." Western officials have also worried about his jailing of two dozen party members, one of whom died in custody last month, and a shut-down of opposition news papers. He has even been accused of establishing a classic communist-style political machine to ensure an acceptable result in the July 5 elec-

"It's a phenomenon you see all over the world," says a senior western official in Armenia's capital. Yerevan. You could have the softest man in charge. But once someone comes to power, he clings

Four years after leaving an academic career at Yerevan State University, Mr Ter-Petrosyan, 50, indeed appears like a man trying to entrench himself and his party in power.

The president, who has studied 13 languages, came to prominence in 1988 as a leader in the so-called Karabakh Committee. The committee pressed the case for independence in a tiny Armenian-dominated

The government has suspended Dashnak political activities. effectively excluding the

party from the elections

enclave called Nagorno-Karabakh, which was situated by Josef Stalin inside neighbour ing Azerbaijan. Yerevan thus became the site of the first big nationalist demonstrations of the Gorbachev era - the huge public outpourings in the non-Russian republics that helped bring down the Soviet Union.

The crusade, which led to a still-simmering, undeclared war with Azerbaijan that has killed at least 5,000 people, informed both contemporary Armenian politics and a new

Although the Karabakh issue has receded from everyday Armenian political discussion the edge it gave to Mr Ter-Petrosyan still remains today. Elected president overwhelmingly in 1991, he simply has no

formidable challenger. The only rival who had a national following, Mr Raffi Hovanissian, whom Mr Ter-Petrosyan sacked as foreign minister, has been barred from next year'a presidential alections because he is a US citi-

In trying to understand why

Mr Ter-Petrosyan has moved to

impose such a tight political grip in Armenia, some analysts look at the nearby examples of chaos that he has witnessed. In Georgia, leader Eduard Shevardnadze came to power after a rebellion against his elected predecessor, and has since had to bring back his republic from the brink of disintegration. In Azerbaijan, Mr Heydar Aliyev, the president, is leading the republic's fifth government in four years, and had to crush what he called a

coup attempt last autumn. Armenia's relative political stability may be born of its people's post-Soviet tendency to pull together during crises. Azerbaijan, on the other hand, during hard times.

Mr Ter-Petrosyan, however, evidently wants more stability in the run-up to elections. They want an assured victory," says a western diplomat in Yerevan.

"What's happened to Ter-Petrosyan," the diplomat adds, "is that he has identified his fate with the fate of the Armenian nation: if he stays in office, at whatevar cost, it must be to the benefit of the Armenian people In December, Mr Ter-Petro-

syan made his first move by

going against the chief opposition political party, the Armenian Revolutionary Federation, known by its Armenian language shorthand, "Dashnak." Dashnak is perhaps the strongest of a handful of Armenian diaspora groups spread through Europe, the US, South America and the Middle East

that are also politically influ-

ential in Armenia itself. The groups marshall financial support from abroad for Armenia and Nagorno-Karabakh, and have become politically vital lobbying groups for Armenian causes in Washington and Paris. Last month, diaspora lobbyists helped push a bill through a US congressio-

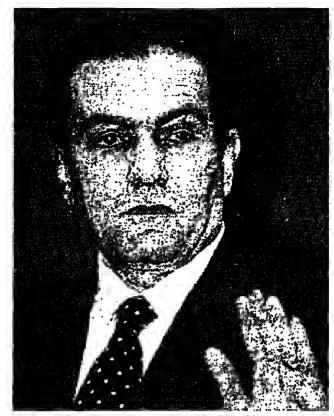
often changes governments nal committee that would sever assistance to Turkey if it continues to obstruct US humanitarian aid from reaching Armenia by land.

Increasingly, Mr Ter-Petrosyan's government, while expressing gratitude to the diaspora, has bristled at its attempts to influence Arme-nian policy. His conflict with Dashnak, however, appears to be especially visceral.

From their side, some Dashnak leaders have felt that they maintained the flame during the diaspora's darkest hours this century, and that they thus possess a right to govern

This naturally angers Mr Ter-Petrosyan, whose policies are generally more moderate than Dashnak's. The president, for example, rejects Dashnak's demand that official relations with Turkey be suspended until Ankara concedes the Ottoman government'a role in the 1915 massacre of more than a million Armenians.

"The Dashnaks felt they had the God-given right to govern Armenia," says Mr Gerard Libaridian, a senior adviser to Mr Ter-Petrosyan. "They felt that no-one [else] in Armenia was qualified to lead the



Soviet helr. Ter-Petrosyan has to manage a hard transition garond?

Mr Ter-Petrosyan bas reinforced this belief by alleging that Dashnak has maintained a secret cell called "Dro" that has carried out political assassinations and trafficked in narcotics. He has specifically accused Dashnak of the December 17 executionstyle slaying of Mr Humbart-

sum Galstyan, the former mayor of Yerevan Regardless of the truth of the

charges, the government's anti-Dashnak policy has subjected it to increasing criticism. On January 6 it suspended Dashnak political activities for

six months, effectively excluding the party from the July 5

death in custody of a prisoner, Mr Artavazd Manukian. The prisoner's lawyer has claimed that government security officials refused proper medical treatment to Mr Manukian. who he said suffered daily bleeding, headaches and back pain. Mr Ter-Petrosyan has denied any government liabil-Meanwhile, the parliamen-tary race is quickly gaining

elections. Even more contro versial, however, was the

momentum. The elections consist of voting to fill a 190-member parliament and a referendum on a constitution that would create a strong-presidential system.

Most analysts expect the new parliament to have a close resemblance to the current legislative body, which is dominated by state factory directors, local politicians and other allies of Mr Ter-Petrosyan.

The president, western ana lysts say, has at least partly guaranteed this outcome by arranging the appointment of pro-government chairmen in 129 of Armenia's 150 electoral districts. Such officials in other former Soviet republics have been responsible, if need be, for nudging the vote in the proper direction.

"Here, politicians are intel-lectuals who only came to politics five years ago, so you would expect a different approach," says a western political analyst in Yerevan. "But they were raised in the Soviet system. They don't know any other way."

The ceasefire in Nagorno-Karabakh may be a year old but the territorial conflict goes on

Two small towns hold key to peace

The nearly deserted Azerbaijan town of Lachin doesn't look very important. Indeed, its battle-scarred collection of burnt and roofless dwellings make it seem beyond regeneration.

Yet, control over it has become a central issue in talks to end the former Soviet Union's longest conflict, a ferocious, seven-year battle between Armenia and Azerbaijan that has killed 5,000 people. Despite its shambolic appearance, Lachin itself has seen relatively little violence in the undeclared war. But its strategic importance is immense. The hilly town straddles a 130km-long corridor that links Armenia to the actual scene of most of the fighting - the Azerbaijani enclave, Nagorno-Karabakh. This position makes n supply route to the battleground, through

bakh's mostly ethnic Armenian population. The Nagorno-Karabakh Armenians are seeking a separate state from Azerbaijan. As one of the prices of permanent peace, however, Azerbaijan

which Armenia proper funnels

assistance to Nagorno-Kara-

wants Lachin back. It appears that, for now at least, Lachin's small new ethnic Armenian population backed by an armed force that captured the town three years ago - isn't budging. "If I were an Azeri, I would

by any means fight against Armenians, because every human being should fight for his land," says Mr Gagik Vardanian, Lachin's ethnic Armenian police chief. "But the fact is that we have liberated this town now - irreversibly - and we are proud of that."

The rise of Lachin to a place of prominence on the negotiating table says a lot about the current state of the conflict. No longer is surrender of the

mountainous, kidney-shaped land called Nagorno-Karabakh an issue. This is because its ethnic Armenian population has achieved what most analysts consider an all-but insurmountable advantage over their Azeri opponents.

The Nagorno-Karabakh Armenians now hold a circle of land expanding far beyond the enclave itself, in all encompassing one-fifth of the Azer-baijan republic. The ethnic Armenian positions are considered virtually impregnable because they include most of the region's strategic heights, and because the Azeri forces have demonstrated little will to attack.

In exchange for peace, the ethnic Armenians have agreed to return almost all the territory they hold outside the

enclave. The talks have narrowed largely to control over two small, disputed pieces of property - Lachin and another

small town. Shusha.

Parallels can be drawn between Shusha and both the Golan Heights and Jerusalem. Like the former, the town sits on a strategic bluff above the Nagorno-Karabakh capital of Stepanakert, from which, until the ethnic Armenians captured it, Azeri forces lobbed shells on to the city. Like the latter, Shusha is a potent historical

symbol to opposing sides.

A look at Lachin, however, is probably the best way to deci-

pher the obstacles confronting those trying to return a sense of normality to the region.

"Every house here was burned down," says Mr Vardanian, surveying the wreckage while driving through the town. "If you see a house with a roof, it means a family has moved into it."

Hardly any of Lachin's houses have roofs - a testimony to the slash-and-burn attack style that both sides employed in the war. Once captured, towns were destroyed to prevent the enemy from mov-

mg back in. Because of their battlefield

superiority, most of the damage was wrought by the Armenian side, The city of Agdam, for example, lying just east of the enclave, was all but razed by the ethnic Armenians two years ago.

This means that, even if a peaceable accord is reached in the next couple of years, the hard part of rebuilding has yet to begin.

The positive side is that hardly a shot has been fired in Nagorno-Karabakh since a Russlan-brokered ceasefire began in May last year. Now, the only real skirmish-

ing involves the undeclared

Armenia. Forces from the two sides have fired on each other for months from 17 villages located in four regions abutting their common border. With a whiff of bravado

combatants - Azerbaijan and

however, Mr Vardanian asserts that the Azeraijanis shouldn't try to push things too far.
"I'll give the Azeris some

advice," Mr Vardanian says, narrowing his eyes. "If they try to change anything here (territorially), it would not be to their benefit. That's for sure. They fight badly.

Steve Levine

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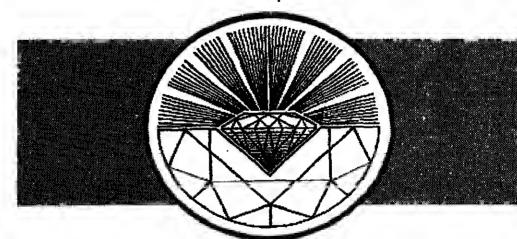
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Shoghakn, Nor Hajen Armenia Matthew Kaminski advises the business traveller

A guide to Yerevan

Torn by war and crippled by economic blockade, Armania presents visitors with serious challenges. Phones work hadly, hot water is scarce and electricity remains in short supply. But, for all the potential snags. the country can be a surprisingly pleasant destination.

Yerevan, the Armenian capital, has a distinct Middle Eastarn flavour, despite a monotonous Soviet cityscape. The international airport is not far from the city, in a valley surrounded by snow-cappad mountains. It offers daily flights to Moscow and other international destinations.

All visitors from countries outside the formar USSR regulre visas which, unlike those for some former Soviet republics, can be obtained quickly at any embassy for \$50. They cannot be issued at the

At customs, fill out a currency declaration to ensure the hard currency brought in can be taken out again.

To avoid aggressiva taxi drivers poised at the exit gate, hire a driver to meet you on arrival. This can be done through some hotels or through tha servica agency,

The capital's premier hotel, Armenia 1, sits in the town centre on Republic Square. known for colourful fountains whera young Armenians years ago by Yugoslav contractors, the hotel (\$100 per night). has spacious rooms, cable TV and supplies about four hours of hot water daily. A humming generator makes sure the lights usually work. A business machine and a reliable, if

phone line. Tha Hotel Armenia 2, just behind the marble halled Armenia 1, provides cheaper rooms (\$20 par night) with bone-chilling showers.

expensive, international ATT

The only hotel to offer hot water 24 hours a day, the Hraz-dan (\$75 per night) requires an official government invitation. Across Poronya Avenue from the Hrazdan, the Hotel Dvin (371 nightly) is the main alternative to Armenia 1, boasting relatively good facilities but a less central location.

Ba aware, however, that hotels and restaurants in Yerevan do not accept credit cards. Bring enough cash, Armenian cuisine can be

sampled averywhere. Shash-

lyks and boiled lamb are the local specialities. Despite being popularly known as the "maffa restaurant", a good (and safe) bet is Dzoraglugh, on Proshian Street, behind the St Sargis church. Waiters in traditional garb serve up grilled meats and fish, Bulgarian beer and Armenian wine for under \$20 per head. Female diners are presented with three roses at the meal's end, conflating Caucasian chivalry and Soviet kitsch. (Women visitors note they would feel uncomfortable eating or travelling alone in

At the Armenia 1, two good restaurants plus a jazz club -where visiting businessmen often of Armenian dascent, World Bank consultants and relief aid workers converge can enliven a humid summer evening. The other hotels also have restaurants considered good by ex-Soviet standards.

After a few meals, however, Armenian cuisine can become tiresome. Alternatives are limited. The Krakow Bistro, adorned with pictures of the Polish city, offers Armanian-Polish fare in a comfortable setting across the Opera House Park, at 29A Toumanian Street. The brave can try the



local Tex-Mex alternative and pizzas at Mexican Dishes "777",

also near the Opera. If you want to sample the nightlife of Armenia's new economic élite, the Royal Club frowned on. Signs for the main and Casino, at 32 Tigran Mets street usa both Cyrillic and Street, might be worth a try. Armenian alphabets.

Waiters and receptionists century on have been coloften speak limited English. Russian remains universally spoken; on the street and officially, its use is generally not Souare.

The Opera House: several Polish and Mexican-style rest

Casual dress is fine, particularly in the very hot summer months. But remember the country lies in the mountains and winter can be bitterly cold. Armenians are very proud of their rich culture and history. Foreigners are often asked to visit the Matenadaran, which one writer called Armenia's Mecca. Here, more than 12,000 manuscripts from the ninth

The main art gallery and history museum is on Republic

just 30 minutes from Yerevan

Ararat, at the Turkish border.

by car, can be fitted in before a morning meeting. About 20km from Yerevan towards the airport, is Echmiadzin, seat of the Armenian Gregorian church, where a fourth-century cathedrai can be explored. Visitors required to spend the weekend should not

despair. Try a day trip to Lake Sevan, an hour east. The Sevan monastery has good examples of Armenian Hachkars, stone crosses found across the country, chiselled into the cliffs or church walls. In the south-east, among breathtaking mountain views, is a Greek-Roman styla first century temple at Garni; nearby in Gerhard, a well-preserved church has been carved out of a cliff. When leaving the "cradle of civilisation", the transition home can be eased at the atrport VIP lounge (entry fee:

\$10). Make sure to arrive early.

A good bar and comfortable

seats are essential if, as is

often the case, your flight

home is delayed. Telephone numbers Arax service agency: 78852-529-418 (ATT line fax: 78852-151-048) Armenia 1: 78852-525-893 (ATT line fax 78852-151-802) The Hrazdan: 78852-535-322

Hotel Dvin: 78852-596-843

rmenians abroad hava a funny reputation. George Orwell, recalling his days as a struggling kitchen hand in Paris, reflected on the veracity of the dictum trust a snake before a Jew. a Jew before a Greek, but don't trust an Armenian".

Something of the same flavour comes from playwright, Friedrich Dürrenmatt, His work, The Visit, shows naturalised Armenian, Claire Zachanassian, guilefully getting revenge on a childhood assailant when returning to har home town.

Such characterisation arouses bitter-sweet feelings in characterisation Armenians abroad, Although fiercely proud of the commercial acumen and entrepreneurial skills that brought many from rags to riches in fewer than threa generations, most would like to think of themselves as more than just cumimaga of business brains is hard to shake off. Most of the 3.5m or so Armenians in the diaspora reached their present homes with little more than the clothes on their backs.

The trigger for the exodus was the genocide of 1915, when religious parsecution and racial hatred fostered by pan-Turkism in the Ottoman empire, where most Armenians lived, spilled over into a bloodbath and led to mass deportations. More than a million are believed to have perished.

The lucky ones fled to start afresh elsewhere. Their usual destinations were neighbouring Middle East countries. such as Iran, Lebanon and Syria, with familiar cultures and climates, or significant powers further afield such as the US and France.

Sizeable Armenian communities already existed throughout the Middle East because of hising with the calculator.

torical trade or religious links, populated by a now dwindling and cities such as Beirut, order of Armenian monks.

Persecution has led to exodus. Haig Simonian on the diaspora

Emigrants remember roots

Aleppo, and Cairo had had Armenian districts for centuries. In Jerusalem, there is an Armenian quarter that dates from the early days of Chris-

tianity. Trade also explained the existence of communities and centres of learning in the wider Mediterranean basin. Port cities such as Venice, Genoa and Marseilles boasted an Armenian presence long before the massacres.

Venice was the most active. it housed an Armenian boarding school and centre of learning, comprising libraries and printing presses. It also had the island of San Lazarro, well beyond the Mediterranean. Visitors to Singapore often notice the small white Armenian church, increasingly incongruous amid the thrusting skyscrapers. Bombay, too, boasted a big Armenian community, built largely on the gold trade, while Isfahan in Iran was an important Arme-

nian centre on the silk route. Vienna is also an important Armenian seat of learning. And Manchester pre-dated London as the main Armenian centre in the UK because of the pull of the textiles trade.

By contrast, Armenian communities in the US and immigrant-hungry nations such as Canada and Australia tend to

of the older centres, such as Manchester, they are expanding, having been replenished by an influx from the traditional refuges of the Middle

In the past two decades, political instability in Lebanon, Iran, and, to a lesser extent, Cyprus, has led to a renewed Armenian exodus. The emigrants have been drawn to the existing large communities. California (Los Angeles and the central valley); France (Paris and the Riviera); and the former Soviet Union (mainly Moscow) have large Armenia

communities.

Each lionises its favourite sons. California produced George Deukmedjian (a former Republican governor) and the billionaire deal maker, Kirk Kerkorian (whose father settled in Fresno to grow fruit). France has sprung a host of celebrities including Charles Aznavour and, the French ladur (born in Smyrna, Turkey, but raised in Marseilles).

grants have generally integrated easily, although there has been occasional resent-ment on the part of older Armenians at the arrival of the

brasher" newcomers. Meanwhile, the passage of time has led to a growing willingness to recognise racial identity, irrespective of politi-cal affiliations with the adoptive countries of Armenians in the diaspora.

change from the mentality of many first-generation immigrants, whose priorwas to remain inconspicuous and get on with creating a stable home and family and seeing to the children's education.

While these factors remain important today, younger Armenians, aven from mixed marriages, are readier to speak their minds. This has helped attempts to quantify and learn more about the diaspora, creating a sense of cohesion.

Published estimates of tha Armenian community in tha UK, for instance, vary between 8,000 and 12,000. A figure of more than 600,000 is regularly quoted for the US. Numbers in France are imprecise, but are believed to hover around the 100,000 mark. Commerce and the profes-

fuzzy in spite of all the efforts.

sions are the preferred careers. with private business people, doctors, lawyers and accountants abounding. Music and other arts are also strongly Politicians, by contrast, are

few and far between, although that may change as economic stability allows younger Armenians to shift their attention from their grandparents' emphasis on survival to wider Despite so much diversity

and the effects of intermarriage, the sense of racial identity has stuck. Language and alive religion are the causes. Know -... Church halls, or the "Hay ledge of Armenian, a mellifluous tongue with a uniqua script, has been a powerful binding force, although one that will inevitably decline through miscegenation.

By contrast, the role of the Church is as strong as ever. Its impact lies not in excessive religious zeal among the dias-

probably agnostic, limiting church-going to births, deaths and marriages, along with fit-ful visits at Christmas and Easter - but in its wider function as a symbol of national identity. Church-building has been a virtual obsession with Armenians abroad from the first immigrants. Holy Trinity in Manchester (financed by contributions of more than £2,500 from Armenian textila merchants in the 1860s); St Sarkis (funded by Nubar Gulbenkian, the oil magnate and one of two Armenian churches in London); Holy Virgin Mary (the new Armenian cathedral in Cyprus), or Forty Martyrs in

Each one is a focal point and regular gatherings for cultural events, gossip or gastronomy keep the sense of community

Milau (founded by two Arme-

nian brothers) are testaments

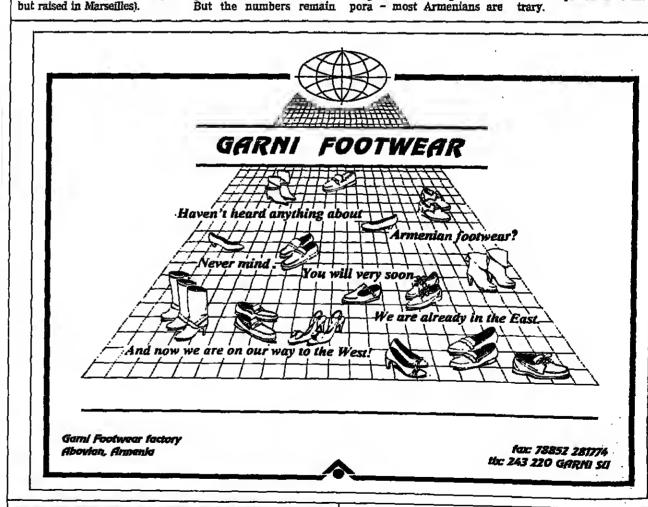
to local Armenians' munifi-

doon" (Armenian house) cultural centres in many hig cities out for a future bride or show off a flashy new car. As long as the churches remain. Armenians in the diaspora are likely to retain their identities, whatever the pressures to the con-

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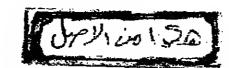
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COMMODITIES AND AGRICULTURE

Price volatility turns can maker against aluminium

By Kenneth Gooding, Mining Correspondent

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: Dampers

Continental Can Europe is to switch the raw material used at one of its two beverage can making plants in the UK back from aluminium to steel. The company is believed to be the first to make this move. although other can and beverage producers have been threatening similar action.

Their protests followed a steep rise in aluminium's price and subsequent increase in the price of can sheet, a special alloy used for beverage cans, at the start of this year by more than 50 per cent in the US and by nearly 20 per cent in

Big aluminium producers are

likely to wait until the end of

this year before re-starting

capacity shut down following

the "memorandum of under-standing" reached by trade del-

egates early in 1993, suggests

Rudolf Wolff, the commodity

broker and part of Noranda,

Canada's natural resources

group. This view was given extra

weight yesterday as a number of producers insisted they had

no plans yet to re-start capac-

ity. Alcan of Canada at first

sight seemed to have broken

ranks with an announcement

that it was to re-start a 28,000

tonnes a year line et its Aratu

smalter in Brazil by the end of

However, Mr Jacques Bou-

By Kenneth Gooding

the company is ultimately owned by Viag, the German group that has an aluminium-producing subsidiary in VAW but no steel production.

A Continental Can official in Düsseldorf said yesterday that the beverage can making plant at Wrexham in the UK would be switched from aluminium to steel during the second half of this year as a "defensive" move. The company was concerned about the volatility of aluminium'e price compared to that of steel which, although also moving up, was doing so gradually.

The company has another UK beverage can making plant, at Rugby, which will continue Continental Can's move will to use aluminium. Each UK

gie, Alcan's president, pointed

out that the Brazilian line was

closed before the memorandum

was reached. Cuts made in

response to the memorandum

at other Alcan smelters would

remain in place until "the

world's inventory situation

improves sufficiently to justify

Mr Martin Squires, author of a special Wolff aluminium

report, said meanwhile that,

while stocks had fallen, "they

are still in a transitory stage

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to 17.075

LME WAREHOUSE STOCKS

plant produces about 1.5bn cans a year. Ironically, Continental Can

last month started production at e new DM80m (US\$) bever ags can plant in Radomsko, Poland, which uses aluminium to produce 450m cans a year. This will be more than enough for present Polish demand and the plant will export to countries in central and eastern Europe. The company has earmarked another DM30m to increase annual capacity in Poland to 1bn cans.

The Continental Can official said that most of the company's ten beverage can plants in Belgium, France, Germany, and the Netherlands as well as Poland and the UK - used

'Smelters to maintain output cuts' and any pick-up in production too soon would once again increase the overburden of stocks which the memorandum was designed to reduce". The market was nervously

concentrating on the withdrawal of the investment funds from the aluminium market and the expected re-start of canacity. "Once the anticipated production increases actually

come on stream this inhibiting factor will be out of the way and the market can begin to focus on the comparatively neglected consumption growth and the limited amount of new smelter capacity currently scheduled," Mr Squires added. Wolff expected the alumintum market to have a supply deficit "for at least the next

MARKET REPORT

London cocoa futures down sharply

Jan Sep Dec Total

ENERGY

Aug Sep Oct Nov Dec Total

their re-start.

London Commodity Exchange COCOA futures prices ended sharply lower yesterday after a speculator-led sell off pushed contracts to some of the lowest levels in a year and a half.

Traders attributed the change in sentiment to the failure of last week's rally attempt. The September position ended down £24 at £941 a tonne. COFFEE futures were also

Precious Metals continued

PLATINUM NYMEX (50 Troy oz.; \$/troy oz.)

PALLADIUM NYMEX (100 Troy oz.; \$/troy oz.)

155.50 -1.20 156.70 155.50 185

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 828.5
 -3.2
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. GOLD COMEX (100 Troy oz.; \$/troy oz.)-

weak early on but recouped some of their losses towards the close as speculators, who had been light sellers, jumped back into the market. Compiled from Renters

'Two big "players" controlling tin stock'

By Kenneth Gooding

Most of the tin in London Metal Exchange warehouses is controlled by two big "players" and this accounts for the present tightness in supplies for immediate delivery, some traders suggest.

This tightness is reflected in a substantial backwardation, or premium for immediate delivery, on the LME. By the close last night the backwardation between cash and three-month tin had widened from US\$75 to \$93 a tonne. Mr David King, LME chief

executive, insisted this was not a cause for concern, but said the exchange was monitoring the situation more closely than usual, as it always did when there was e backwardation. The LME executive could intervene if it suspected that the market was being manipulated in an unde-sireable way.

One theory supported by

some traders, is that a big tin producer is holding stock to protect its position as it sells forward to keep the forward price down. This is because of worries about consumers substituting other metals in some pplications should tin rise too far too fast.

Mr Wiktor Bielski, analyst at Bain Securities, a Deutsche Bank subsidiary, pointed out that very little tin was evailable for immediate delivery because of a sharp fall in exports from China. These were at present down to an annualised rate of 25,000 tonnes compared with more than 44,000 tonnes in 1994. So the deficit might reach 15,000 to 20,000 tonnes this year, which would reduce total stocks to below nine weeks' consumption, from 15 weeks at the end of 1994.

The tin price could be expec ted to top \$3 a pound (\$6,612 a tonne) soon and reach a peak of \$3.20 to \$3.50 after that, Mr Bielski predicted.

Strong recovery seen in Australian grain harvest after 1994-95 drought

By Nildd Talt in Sydney

Australian grain farmers should see a substantial recovery in crop production during 1995-96 after the previous growing seeson's disastrous, drought-depressed decline, according to the Australian Bureau of Agricultural and Resource Economics.

Abare, a federal governmentowned research agency, forecast yesterday that wheat production should total around 16.04m tonnes, up from just over 9m tonnes in 1994-95, and

area sown to winter wheat was expected to rise "mainly reflecting e recovery from drought-reduced plantings in 1994-96, but also reflecting ris-ing world prices as a result of wet weather in the US and

similar to levels seen in the

two preceding years. It said the

The bureau warned, how-ever, that "despite some good rains in many parts of Queens land, the run of poor seasons has made farmers wary of rapidly expanding the arees planted to winter crops".

"Good follow-up rains are required during June before the expected area will be sown. If this this occurs there could be around Im hectares of winter crops sown in Queensland in 1995-96," it said. Queensland has been the stats worst affected by the recent drought conditions - blamed on the "El Niño" climate pattern -although New South Wales and Victoria have also been badly hit. Wheet production in Queensland was just 222,000

tonnes last year, against the 1m tonnes produced in an aver-

The total aree planted to winter crops in the 1995-96 season was forecast to be 16.8m hectares, up 18 per cent on the previous year, with the area planted to cereal, pulses and oilseeds expected to expand in all states except South Austraha. Abare also predicted that cashflow needs would also encourage farmers to boost cropping before expanding livestock interests - simply because cropping income would be received more

Sugar growers expect lower production

By Nikki Telt

Queensland cane growers have warned that raw sugar produc-tion in Australia is likely to dip from last year's record level, largely as a result of continuing drought conditions in some parts of the state. Queensland is the country's

main sugar-cane growing state, and a major supplier of raw sugar exports on world mar-

"Queensland's cane growing regions, particularly Bunda-berg and Mackay, experienced one of the driest growing seasons on record in 1994-95

sonal conditions are expected to result in slightly reduced tonnages and lower sugar content in cane," said the Queens land Sugar Corporation this

Preliminary estimates, just ahead of this year's crushing season, suggest that just over 4.55m tonnes are likely to be

produced, down from 4.68m tonnes in 1994. However, returns to growers will be dented further by lower world prices, as increased production from Brazil, India and Thailand is expected to lift world production above consumption

Cuban nickel attracts S African miners

By Pascal Fletcher in Hayana

South Africe's Gencor and Anglo American Corporation are negotiating large-scale min-ing projects in Cuba, mainly aimed at the island's extensive nickel reserves,

Gencor's negotiations are the most advanced. It is discussing two contracts in the central eastern province of Camaguey, One is for long-term assessment and development of a 120 sq km surface nickel deposit, the Meseta de San Felipe, and the other for a 2,010 sq km concession to explore mainly for gold.

"The contracts are practically agreed," says Mr Pedro Cruza, director-general of the Cuban mining company Geominera, which will be Gencor's partner in the initiative. He

believes the final contracts

could be signed in June. A letter of intent already exists. Two negotiators from the Sonth African company, Mr Albert Mostert and Mr Leon Liebenberg, were in Havana at the end of May but declined to

comment on the negotiations. Anglo American Corporation has been involved in separate talks on a potential nickel project with another Cuban company, Caribbean Nickel. It is understood to be looking at a large concession area in the Moa region of eastern Cube, which contains the bulk of the island's nickel reserves - estimated at at least 13 per cent of the world total.

The South African company has a confidentiality agreement with Caribbean Nickel under which neither side is permitted to disclose the details of the discussions.

Mr Cruza says the Meseta de San Felipe nickel concession being negotiated with Gencor is e large, virgin surface

The duration of the contract being discussed is for 25 years, renewable for another 25, and includes the possibility of building e 20,000 tonnes-a-year processing plant. One of the points still to be resolved is what Gencor's share in the nickel venture will be.

The split will be 50-50 in the Camaguey gold exploration venture. But Gencor is understood to be seeking a share above 50 per cent in the Meseta de San Felipe nickel project, the total cost of which is expected to at least \$200m and possibly as much as \$500m.

There is a precedent for this majority foreign share. A letter of intent signed by Australia's

JOTTER PAD

Western Mining Corporation last September gives it e 65 per cent stake in a \$500m project to develop a 200m tonne nickel/ cobalt ore deposit at Pinares de

Mayari Oeste in eastern Cuba. Projects to assess and mine large chunks of Cuba's considerable nickel/cobalt laterite ore reserves are among the most attractive investment opportunities being offered by Cuba to foreign miners. Canada's Sherritt is operating a nickel/cobalt processing and refining venture and some 15 other foreign companies, mostly Canadian, are exploring for gold, silver and base metals on the island. Gencor has used its bloleaching process to help Geominera test a gold deposit at Debta on the Isle of Youth, off the south-western coast, which is being developed by Canada'e Miramar Mining Corporation.

COMMODITIES PRICES

BASE METALS LONDON METAL EXCHANGE Prices from Amalograssed Metal Tradings M ALUMNSUM, 66.7 PURITY (\$ per topne) Costs 3 politics 1765-5-68.5 .1779-80 1776-77 High/low AM Official Kerb close

1776-78.5 1773-74 IN ALUMENIUM ALLOY (S per tons 1640-50 1640-50 Cioso Provious 1645-60 1856-60 Kerb close 2,549 190 Open Int.
Total daily turnover LEAD (\$ per tonne) Close Previous High/low AM Official Kerb close 30,961 4,804 M NICKEL (S per torme) 7890-84 7755-60 7850-60

7990-8000 7950/7640 7870-80 7925-30 7740-60 12,303 Total daily tumove TIN & per tongs High/low AM Official 6200-206 16.684 3,403 # ZINC, special high grade (5 per tonne) 998.5-99.5 998.5-97.5 1024-24.5 1022-23 1026/1018 1024.5-26.0 Provious
Pro COPPER, grade A (\$ per tonne)

2857-58 2881-82 2870/2847 2865-86 2846-7 Official E/6 rate: 1,5892 sing E/5 rate: 1,5893 Spot: 1:590t- 3 mits: 1.5679 & color: 1.5690 9 mits: 1.5775 HIGH GRADE COPPER (COMES) | Close change High tow Int. | 132.55 -2.25 134.20 132.50 1.214 132.00 -2.05 133.80 121.80 27.935 139.45 -1.90 -7.00 129.35 -1.70 130.50 123.10 3.338 128.05 -1.80 -7.80 44.425 1,155 38 6,840

PRECIOUS METALS I LONDON BULLION MARKET Prices supplied by N M Rothschild) £ equiv SFr equiv \$ price £ equiv SF1 equiv 384.30-384.60 384.30-384.60 384.20 241.514 447.401 384.20 241.635 447.862

384,40-384,70 383,80-384.10 Previous close 383.20-383.50 Loop Lan Mean Gold Landing Rates (Vs USS)5.10 5.07 3 months

345.95 367,10 £ equiv. 242-244 5 pnce Gold Coins Krugemend Mople Leaf

MYNEX (42,000 US galls.; crUS galls.) US cts equiv. 534.25 541.10 547.70 581.30

\$1.05

GRAINS AND OIL SEEDS WHEAT LOE (E per tonne) Sett they's prior thangs High Low 126.90 -1.55 127.95 126.90 815 107.90 -0.85 108.15 107.80 583 108.00 -0.55 108.00 108.00 3,894 110.95 -0.70 111.00 110.95 1,596 15 231 115.05

-9/5 387/4 377/0 40,934 -2/6 389/4 383/2 17,175 -4/4 406/4 395/4 24,019 -6/4 409/0 396/4 1,862 -8/0 384/0 380/0 27 +5/0 362/0 352/0 306 MARZE CET (5,000 bu min: cents/56tb bushel)

108.25 -0.25 107.25 -0.40 109.70 -0.45 109.70 109.50 111.60 -0.10 111.60 111.50 SOYABEANS CST (5,000bu min; cants/60lb bushes) SOYABEAN Oil, CET (60,000lbs; conts/fb)

18.75 18.57 18.40 18.58 19,281 4,892 18.54 17,881 1,100 18.40 24,192 2,490 233,768 73,741 CRUDE OIL IPE (\$/bane) SOYABEAN MEAL CET (100 tons; \$/ton) 18.24 17.93 49.139 17.293 173.4 +1.3 174.9 172.2 34.758 175.4 +1.4 176.7 174.2 12.890 177.2 +1.5 178.8 176.3 10,178 178.1 +1.4 180.5 176.1 8,438 182.9 +1.5 184.8 161.7 15,315 183.2 +1.4 186.5 183.0 1,322 84.208 17.47 15,412 17.58 16,523 17.28 4,947 17.17 11,910 147,965 27,548 HEATING OR WIVEX (42,000 US galls; c/US galls) 86.0 107.5 109.5 195.0 150.0 +0.2 110.0 186.0 478 4 482 REGIGHT (BIFFEX) LCE (\$10/Index point)

Sett Day's price change -1.50 156.75 154.00 18.223 -1.25 154.50 182.25 25.724 -0.50 154.25 152.50 12.842 -0.50 156.00 164.25 8,762 -0.75 158.50 157.00 4,558 -0.25 161.75 180.25 8,985 15675 15400 18323 8389 8,717 2,578 616 758 8,996 1,249 88,810 22,669 IN MATURAL GAS WINEK (10,000 mmBall; SimmBal) 1,706 27,263 16,451 1,780 20,638 3,633 1.720 -0.011 1.730 1,788 -0,018 1,805 1,780 20,538 1,810 -0,021 1,821 1,810 18,204 1,826 -0,021 1,830 1,820 19,182 1,896 -0.019 1,896 1,890 8,229 1,985 -0.023 1,970 1,985 14,248

Lettent Ony's price change High Law lat Vol 58,750 16,732 58,75 -0.54 59.50 58,65 18,429 51,81 68,95 -0.25 57,16 68,95 -0.25 57,16 68,90 6,907 2,525 55,05 -0.15 58,10 58,00 3,273 22 40,15 -2,035 9 3,136 3

-1/Z 270/6 266/4125,191 19.256 -0/6 277/6 273/2 46,046 6,168 -1/Z 263/9 278/0 207.907 29,806 -1/4 267/6 263/0 21,713 1.422 -0/6 250/0 266/4 4,786 234 -1/2 291/4 287/4 11,717 680 -624,163 58,661 BARLEY LCE (£ per torne)

\$92/0 +8/4 585/4 586/0 64,086 18,687 596/4 +7/0 600/2 587/4 18,275 1,015 602/2 +8/2 605/4 597/4 7,071 703 810/0 +8/0 51/0 505/0 60,986 7,414 616/4 +7/4 621/0 513/0 4,325 351 623/4 +7/2 827/0 619/0 1,370 500 28.42 +44.5 26.45 26.03 25,187 11,847 28.33 +42.45 26.35 25.98 12,188 1,478 28.22 +40.43 26.35 25.98 12,188 1,478 28.25 +40.43 26.35 25.98 60.07 420 28.25 +40.43 26.25 25.90 60.09 137 28.17 +40.41 28.25 25.83 17,582 1,787 26.13 +40.38 26.15 25.98 1,124 94 1,124 94 73,686 15,840

526 938

Minor Menis
European tree merket, from Metal Bulletin, \$
per lo in wertshouse, unless otherwise stated
(ast week's in brackets, where changed, Antimonys 98.8%, \$ per tonne, 2,800-2,960. Bispurite min. 99.99%, tonne (ote 5,10-3.36
(3,10-3.45). Cadenitum: min. 99.5%, 100-105
(85-90) cents a pound. Cobast: MB free merlett, 99.89%, 28,40-28.90 (28,70-29.40); 99.3%,
26,40-27.20 (28,60-27.40). Mercury: min.
99.89%, 5 per 78 is fleet, 145-156 (145-160).
Molybolenums chummet molybolic codela, 8,504,20, Tungatten over standard min. 65%, \$ per
tonne unit (10tg) WO₂, cf. 60-72. Vanadiums
min. 98%, cf. 3,00-3,45 (3,15-3,55). Uraniums
Nuecco exchange value, 7,65 (7,35).

SOFTS ■ COCOA LCE (E/forme

Sett Day's Open price change High Low Int. Yol 937 918 26,204 8,262 955 938 23,341 4,972 978 963 22,594 4,383 941 941 988 987 -24 -24 -20 -20 938 23,341 4,972 963 22,584 4,383 965 28,700 3,226 E COCOA CSCE (10 to 1296 1231 1354 1395 1410 1294 1326 1363 1403 1416 1438 13,795 6,039 5,503 2,955

■ COCOA (ICCO) (SDR's/tonne) ■ COFFEE LCE (S/torme) -25 2912 2847 15.332 1,038 -41 2878 2815 14,009 915 -43 2846 2823 2,882 99 -30 2833 2815 529 1 -33 2825 2811 467 1 -35 2815 2790

155.65 -1.75 157.90 154.70 16.334 1.559 156.10 -1.95 160.00 157.50 11.496 513 161.10 -2.05 161.75 159.90 4.930 101.63.80 -1.95 162.78 2.493 34 164.80 -1.75 - 193 - 193 165.80 -1.75 165.20 165.80 25 - 193 2 5 5 601 2.917 35,503 2,207 No7 PREMIUM RAW SUGAR LCE (cents/fbc) 13.27 10.43 13.25 4,360 WHITE SUGAR LCE (Shonne)

354.0 +6.0 355.0 348.0 11,014 579
301.8 +3.9 302.5 257.5 5,837 509
256.5 +2.6 257.5 284.0 2,839 62
253.0 +2.5 283.0 269.3 269.2 2521 27
255.3 +2.3 265.3 263.5 427 3
267.0 +2.0 267.0 267.0 199 1 ■ SUGAR '11' CSCE (112,000lbs; cents/lbs) 11,78 +0,25 11,83 11,50 44,596 8,143 10,15 +0,12 10,21 10,03 36,838 8,584 8,92 +0,10 10,00 9,85 22,582 1,759 8,90 +0,10 10,00 9,86 8,97 8,405 187 9,75 +0,109 9,81 2,75 2,243 115 187 COTTON NYCE (50,000lbs; cents/lbs) 108.50 +0.75 109.00 104.75 15.419 2.411 85.85 +2.24 85.10 83.10 9.712 1.289 76.75 +1.30 79.80 76.35 28.773 8.032 80.90 +1.13 80.80 80.80 10.317 805 81.00 +0.85 81.00 80.50 3.886 115 81.00 +0.86 81.00 81.00 1.863 85 71.551 10.413

101,20 -3.26 105,20 101,16 11,475 1,275 105,60 -3.10 108,00 105,50 9.264 463 -3.10 108.00 105.50 8,264 -2.50 108.00 105.00 2,970 -2.75 108.70 107.00 2,867 -2.95 111.30 109.00 852 -5.40 114.00 112.10 436

Open Interest and Volume data shown for contracts traded on COMEX, NYMEX, CBT, NYCE, CME, CSCE and IPE Crude Oil are one INDICES

■ REUTERS (Base: 18/9/31=100)

VOLUME DATA

■ CRB Futures (Base: 1967=100)

MEAT AND LIVESTOCK ■ LIVE CATTLE CME (40,000lbs; cents/bs)

Sett Day's Open price change High Low Int Vol 63,625 +0.426 63,825 83,225 13,910 12,542 82,300 -0.400 83,000 82,000 21,730 10,266 83,450 -0.326 83,975 83,300 13,488 2,604 64,250 -0.326 84,700 84,075 5,507 1,270 85.475 -0.175 65.800 85.450 1,908 IN LIVE HOBS CME (40,000/bs; cents/fbs) 42,050 +0.025 42,700 41,750 42,925 -0.025 43,000 42,700 43,900 - 43,950 43,800 43,200 +0.050 43,200 43,000

37.375 +1.900 37.600 35.650 4,624 1,824 36.375 +1.400 36.460 34.850 2,807 1,087 50.100 +0.375 50.100 49.300 284 55

LONDON TRADED OPTIONS 130 80 46 1700 ■ COPPER 138 91 57 2700 COFFEE LCE

LONDON SPOT MARKETS CRUDE OIL FOB (per barrel/Jul)

BRENT CRUDE IPE JUI

1750 ..

\$18.88-6.74z \$17.95-7.98 \$17.85-7.88z \$18.98-8.01z A Oil PRODUCTS NWE prompt delivery CIF (tonne) \$200-202 \$155-167 \$94-96 \$188-190 \$168-169 \$755-157 Naphtha Jet fuel S OTHER

Gold (per troy oz) Silver (per troy oz) Platinum (per troy oz.) Paliadium (per troy oz.) 532,50c \$432,25 \$156,40 Copper (US prod.) Lead (US prod.) 15 29m Cattle (Ive weight)† Sheep (ive weight)†\$ Pigs (ive weight)† 124,05p 116,59p 96,34p Lon. day sugar (raw) Lon. day sugar (wte) Tate & Lyle export Bartey (Eng. teed) Malze (US No3 Yellow) Ung. 2147.0 Wheat (US Dark North Rubber (Jul)♥ Rubber (Aug)♥ 104,50p 104,50p Rubber (KL RSS No1) 392.0m -4.4 Coconut Oil (Philis \$645.Dv Pairo Oi (Malay.)§ Copra (Phil)§ 413,Du Soyabeans (US) Cotton Outlook'a' index

522p conte/lig. u May/Jun w don Physical. § CIF Ross Sheep (Live weight **CROSSWORD**

No. 8,781 Set by DOGBERRY

ACROSS
1 Valley in Which bachelors 4 Keep from opening porno-graphic book (8) 10 Jets of anti-sun compound (9) 11 Holy place forever about to sink back (5) 12 Abraham's sacrifice to e

divine incarnation (4) Conductor's repartee about burst dams (10) 18 Waste of medicine received by 15 Antelope welcoming leaders of New Guinea to the country wise man (8) 20 Desire to know about source 16 Allure setting reticent heart 21 Twine round pole in expres-

affutter (8)

19 Board opening bidding in 22 Don's companion wants cash eastern currency (6) on delivery (6)
21 The worst and best possible 24 Don't stop tearing to Yorkplace for repairs (8-4) 23 Agreement sbroad to go to bed in a Puritan 4 (7.3) 25 Dropped for being ugly (4) 27 Manage to bear south in the

wood (5) 28 Special payments backing drama or song (9)
29 Note mint condition of cream

30 Tell stories to hill dog (6) DOWN

1 Bent novelist died embracing 2 Search in the British Museum

for second city (9) 3 Plenty of gambling tokens (4) Dregs live outside Uruguay (5) 6 Fake sexiness in uninspiring



26 Classical ship and its uno

pened contents (4)

without odour (5)

and decoration (6)

8 Donkey's eye treated with

mineral (6)
9 Free to include proclamation

14 Express horror about a

youth's dressing (5.5)
Place of worship where nasty

woman and man turned fat

INTERNATIONAL CAPITAL MARKETS

US Treasuries volatile in early trading

By Lisa Bransten in New York and Conner Middelmann in London

US Treasury prices were volatile throughout the morning yesterday as the market continued to come to terms with the sharp rally staged at the end of last week.

Bonds opened lower in New York on the heels of profit-taking in Europe, but later recovered as Mr Robert Parry, president of the Federal Reserve Bank of San Francisco, said he believed the economic slowdown had "intensified."

By midday the benchmark 30-year Treasury was trading 1 higher at 114% to yield 6.501 per cent. At the short end of the maturity spectrum, the two-year note was 🔓 lower at $101\frac{1}{16}$, yielding 5.550 per cent. Immediately after Mr Parry's comments, the long-bond post a retreat as investors took some profits out of the market.

A Commerce Department report that wholesale invento-

ries rose a seasonally adjusted 1.2 per cent in April was seen as good news for bonds because it suggests production may be lower in the second quarter as there is sufficient inventory to meet demand. A stronger dollar also offered some support to bonds. By midday the US currency was

trading at DM1.4135 and Y85.05 compared with DM1.4105 and Y84.90 late on Monday. The yield curve that maps the yield spread between twoyear notes and the long-bond flattened modestly. Near noon the spread was at 95 basis

points compared with 98 points

late on Monday.

■ European markets saw another day of gains, buoyed by investor buying on interest rate optimism and continued US Treasury strength.

Amid widespread bond-posi-

tive sentiment, Enrope's highar-yielding markats have started to catch up with their core counterparts. "If there's a sustained period of currency stability, you could see some investors hunting around for higher yields in Europe," said one trader.

GOVERNMENT BONDS

■ Among the peripheral mar-kets, Swedish bonds put on a strong performance after the central bank raised its repurchase rate by 25 basis points to 8.66 per cent, causing their yield spread over German bunds to narrow to 368 basis points from 379 points. The market gained extra support from the krona's strength.

strong gains, underpinned in part by their currencies' resilence against the D-Mark. In Spain, prices rose sharply in futures-driven trading, with the June 10-year bond future up 0.68 et 88.08. Italy'e BTP future gained 0.28 to 101.75.

■ German bunds made healthy gains on the back of US Treasuries, although trading was dominated by roll-over activity from the June into the Septem-

ber bund futures contract.
The Bundesbank's allocation of two-week repos will be closely watched for clues on the near-term direction of interest rates. Traders in Germany were cautious about the chances of a significant reduction from last week's 4.51 per cent rate, some London dealers were hoping for a sharper decrease, signalling an early cut in the discount rate.

Italy and Spain also posted IVK gilts tracked US Trea suries higher in quiet trading An early dip in prices triggered healthy investor buying, sig nalling that the market continnes to have a solid base. Dealers are now looking to tomorrow's industrial production data for evidence on whether the US soft landing has spilled over to the UK.

> ■ The State Bank of Vietnam has opened a Treasury bill market, and will hold the first domestic T-bill auction on Thursday, Reuter reports.

Six-month bills totalling 60bn dong (\$5.43m) in denominations of 10m dong, 5m dong, 2m dong and 1m dong will be offered at the auction, officials at the central bank said. adding that 32 financial institutions, including three jointventure banks and four foreign bank branches, had registered as full members of the market.

reforms in prospect, says Bank

By Richard Lapper

The Bank of England yesterday signalled further possible reforms of the UK government bond market, indicating that gilt repos might be used in its broader money market operations.

Mr Ian Plenderleith, executive director, also hinted at the further development of the index-linked market during a speech to a London conference on gilt repos.

Gilt repos, to be introduced next January, are one of a number of reforms designed to make the market more efficient and attractive. Mr Plenderleith said their introduction entailed a "sea change in the structure of the market". Other changes announced recently include a programme

of structured auctions and tax changes, paving the way for a market in gilt strips.

Conpled with imminent changes to settlement and supervisory procedures, the introduction of repos is "likely to bring a greater fusion between the sterling money and bond markets . . . which are inherently parts of a single continuum across the maturity spectrum," he said.

Gilt repos will introduce a new secured money market instrument which will be closely monitored. While the Bank has no plans to change the form of its money market operations, the development of repos "could make it sensible for the Bank to contemplate changes in its operations in

due course".

Mr Plenderleith said that as interest in index-linked stock deepened and other countries adopted similar programmes, the Bank would "consider whether any adaptations are needed in onr index-linked market to meet evolving

Further gilt | Lehman in offer for collared FRNs

By Antonia Sharpe

Lehman Brothers announce a tender offer today for any or all securities from 57 issues of collared floating-rate notes, worth about \$9bn. This is the largest tender of

its kind in Europe and follows offers for structured notes launched recently in the US.

Lehman intends to accumulate these issues and repackage them into ordinary FRNs, which will then be sold in larger and more liquid units to institutional investors. It declined to say how many notes it expects to buy during the tender period, which is due

to close on June 20. The market in collared FRNs, which differ from ordi-nary FRNs in that they have minimum and maximum coupons, took off in the summer of 1992 when interest rates were falling. They appealed in particular to European retail investors who were keen to enhance their returns.

In many cases, the floor, or minimum coupon, on the notes was 5 per cent when money. market rates were more than 1½ points lower. However, the value of collared FRNs dropped in early

1994 when the US Federal

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Reserve raised interest rates, bringing an end to the bull run in the bond markets. The change in the interest rate environment took away the main attraction of the notes. Many of these notes, which were issued at par, are now quoted in the low to mid-90s but they are difficult to trade Mr Andrew Pisker, head of Lehman's fixed income new . issues and credit business in Europe, said many retail investors wanting to sell their small positions in collared FRNs had been unable to get an attrac-tive price. "A public transaction, such as a tender offer, provides a very efficient and transparent alternative for those investors who want to

sell their holdings," he said.

IFC plans to securitise \$400m worth of loans

By Antonia Sharpe

The International Finance Corporation, the World Bank's private sector finance arm, intends to securitise \$400m of its loans to privately-owned companies in 11 developing countries.

Mr Jannik Lindback, executive vice-president of the IFC, said the pilot transaction would increase its capacity to invest in developing countries by freeing capital on its bal-ance sheet. It would also mobilise private sector investment from institutions active in the asset-backed market that had not invested previously in

developing countries. The IFC will pool a group of its senior loans to 73 private

companies in Asia and Latin America, and sell participation interests in the loans to an offshore trust. The trust will finance the acquisition through a public offering of

floating-rate certificates.

The deal is expected to be launched in the next few weeks, CS First Boston, which advised the IFC, will be lead manager and Deutsche Bank

and UBS co-managers,
If the deal is successful, the IFC is likely to consider securitising more of its loans. Its outstanding loan portfolio totals \$5.7bn, of which \$1.14bn is in Latin America and \$760m in Asia. The transaction could also encourage other multilateral agencies to securitise

L-Bank global offering set to dominate activity

By Antonia Sharpe

L-Bank is expected to dominate activity today with the launch of its global bond offering, which could be as large as

The issue, via Dresdner Bank and Morgan Stanley, will have a 10-year maturity and the pricing is likely to be about 20 basis points over German gov-

INTERNATIONAL BONDS

ernment bonds. The deal will probably bave been launched overnight in Asia to give momentum to trading in

Europe and the US. Yesterday, the primary market was lively with deals coming in dollars, yen, D-Marks and even escudos. Unusually, many of the offerings seemed

to be correctly priced. from NTT of Japan was because spreads have widened snapped up by a broad range of at home. Several houses sub-

investors. Lead managers Merrill Lynch and SBC said the deal sold quickly because of the issuer's rarity value, the scarcity of five-year eurodollar paper and the 6 per cent coupon, which was attractive to

retail investors. The bonds were priced to yield 20 basis points over Treasuries at launch but ended the day at 17 points over.

NTT's deal caused the \$300m three-year offering for Toyota to get off to a slow start but the spread on the bonds tightened slightly from 15 basis points over Treasuries to 14 points when syndicate broke.

The \$300m five-year floatingrate note for Dean Witter Discover was also regarded as successful due to its realistic pricing and extensive pre-marketing. Several recent FRNs have been aggressively

Other US issuers are looking A \$250m five-year offering at the eurobond market

Sorrower US DOLLARS	Amount m.	Coupon %	Price	Maturity	Fees %	Spread bp	Book runner
Dean Witter, Discover & Co.:	300	(a)	99.88R	Jun.2000	0.25R		Morgan Stanley & Co. Int.
Tayota Motor Credit Corp.	300	5.875	100.01R	Jun. 1998	0.1875R	+15(61/4%-98)	Merrill Lynch International
NIT	250	6.00	99.652R	Jun.2000	0.25R	+20/8/496-00)	
Chemical Banking Group(b);	200	(b1)	99.935R	Jul.2000	1175R	•	Chemical Investment Ban
YEN							
Eksportfinans*	50bn	2.65	100.10R	Jul.2002	0.30R		Fuji Intl./ Yamalchi Intl.
D-MARKS							
Crédit Local de France	500	5.875	99.80R	Jul.2000	0.25R	+30(8*4%-00)	ABN Amro/ Trinkeus
Sudwest, LB Capt, Mkts. (c)	500	5.625	99.90R	Jul. 1999	0.226R	+20(676,6-99)	SBG (Deutschland)
Desterreichische Postsparkasse	300	5.75	99.60R	Jul.2000	0.25R	+22(61/4%-00)	CSF8-Effectenbank
SWISS FRANCS							
Desterreichische Postsparkasse	100	5.00	103.65	Jul.2005	2.75		UBS
ESCUDOS							
Official Credit Institute(c):	20bn	(d1)	100.00	Jul.2000	undisci.		BSN Portugal

mitted blds yesterday to Xerox, which is believed to be considering a \$200m five-year fixedrate offering. The company might have to pay e spread of about 45 basis points over

Treasuries because of its single A rating. Norway's Eksportfinans joined the stream of issuers launched a rating scale for syn-

Sep 2-02 1-31 1-03

-0-06 -0-05 -0-10

NOTIONAL LONG TERM JAPANESE GOVT. BOND FUTURES (LIFFE) Y100m 100ths of 100%

M ECU BOND FUTURES (MATIF) ECU100,000

Open Sett price Change 86.90 87.14 +0.38 86.86 88.96 +0.12

tapping the yen market, raisdicated bank loans, incorporating Y50bn through an offering ing the value of collateral and other protective features proof seven-year bonds. Joint lead manager Yamaichi said that the deal was mainly placed in Japan, but there had also been some interest in

vided to lenders by corporate borrowers, writes Conner Middelmann. The scale is intended to facilitate loan trading, enhance borrowers' access to • Standard & Poor's has capital and offer lenders a new way to evaluate their exposure.

BENCHMARK	GOVE	RNME	NT BO	ND\$				M BUNO FUTU	BUNO FUTURES OPTIONS (LIFFE) DM250,000 points of 100%								FT-ACTUARIES	FT-ACTUARIES FIXED INTEREST INDICES								
100	Coupon	Red Date	Price	Day's change	Yleid	Week BGQ		Strike Price	Jul	Aug	ALLS	Dec	Jui	Aug P	UTS Sep	Dec	Price Indices UK Gilts	Tue Jun 6	Day's change %	Mon Jun S	Accrued Interest	xid adj. ylid		Low Jun 6	Jun 5	
Australia Austria Belgium Cenada ' Denmark France BTAN	7.500 7.000 6.500 9.000 7.000 7.750	07/05 05/05 03/05 12/04 12/04 04/00	92,6000 100,8300 95,4700 107,3500 93,6400 103,8750	+0.190 +0.650 +0.560 +0.100 +0.340 +0.630	8.81 6.88 7.15 7.88 7.97 6.78	8,84 6,95 7,39 8,20 8,09 7,01	9.67 7.31 7.83 8.57 8.64 7.43	9600 0. 9650 0. Est. vol. tatal, Cal	.37	0.91 0.65 0.44 Puts 141	1,12 0.85 0.64 112. Previous	1.02 0.83).54).87	0,58 11,62 1,11 143779	0.79 1.02 1.31 Puts 10607	1.38 1.57 1.96	1 Up to \$ years (23) 2 5-15 years (21) 3 Over 15 years (9) 4 Irredeemables (6) 5 All stocks (59)	122.83 147.98 167.05 191.34 143.76	+0.02 +0.07 +0.04 +0.12 +0.05	122,80 147,86 166,98 191,11 143,69	2.38 2.12 1.93 1.22 2.21	4.27 8.44 6.06 6.36 5.16	5 yrs 15 yrs 20 yrs bred.†	7.43 7.77 7.78 7.85	7.43 7.78 7.78 7.86	1 2
OAT Germany Bund Ireland	7.500 6.875 6.250	04/05 05/05 10/04	101,5500 102,7200 67,6000	+0.620 +0.440 +0.100	7.27 6.49 8.19	7.46 6.63 8.36	7.79 7.04 8.83	italy ■ NOTIONAL (UFFE)* Ura				np, ruru	RES				Index-linked 6 Up to 5 years (2)	196.15	+0.04	196.07	0.92		lie to E .m	Jun		vi 5
taly Japan No 119 No 174 Vetherlands	9.500 4.800 4.600 7.000	01/05 06/99 09/04 06/05	67.5100 110.3400 113.5000 102.7400	+0.110 +0.260 +0.410 +0.400		11.95 2.13 2.62 6.71	12.92 2.61 3.39 7.12	Jun 10	pen 11.60 11.26	Sett pri 101.75 101.40	+0.28	102.12		60	Est. vol 7111 38591	Open int. 101 00 33991	7 Over S years (11) 8 All stocks (13) Average gross redemption ye	167.92 187.90	+0.15 +0.14	187.65 187.65	1.34 1.30	2.57 1.73 1.81	Up to 5 yrs Over 5 yrs	9.9	51 5	2.99 3.52
Portugal Spain Sweden	11.875 10 000 6.000	02/05 02/05 02/05	100.3200 93.4200 74.8290	+0.220 +0.680 +0.640	11.79 11.10 10.21	11.87 11.48 10.74	12.25 12.14 11.29	Strike -	VT. BO	MD (BT	P) FUTURE	S OPTION	S (LIFFE)	Lira200	Om 100th	s of 100%	, and a second second		ar a	2002 2	34. 574-144	modali o	e loka, roga			a. ,.
UK Gills US Treasury '	6.000 8.500 9.000 8.500	08/99 12/05 10/08 05/05	95-10 105-24 110-08 103-05	+1/32 -5/32 +5/32 -5/32	7.33 7.69 7.75 8.07	7.66 7.90 7.95 6.34	8.25 8.40 8.39 7.03	10100 10150 10200	2.1 1.5 1.6	93	D 3.0 2.0 2.0	06 32	1.79 2.00 2.20	3	3	Dec .06 .32 .60	FT FIXED INTE	REST III 6 Jun 5		1 May 3	1 Yrago H	ligh' Lo		T EDG	ED A	AC

Est. vol. 3,304 2,251

491 5213

8,442 487

CU (French Govt)	7.625 6.000		114-21 90.1400	-5/32 +0.340		8.70 7.76	7.34 8.18	Est. vol. to	nal. Calts 234	Puta 778. Pi	won day's	open int., f	Calls 19422 F	Put
endon closing, "New Yo Gross fincturing withho loss: US, UK in 32nds,	olding ter	at 12.5 per 6	ant payable	by nonres	(ptimeba		est standard.	Spains		ISH BOND I	TURES (MEFF)	d t	
S INTEREST	RAT	TES						Jun	Open 87.38	Sett price 88.06	Change +0.71	High 88.09	Low 87.38	1
mentime	3	One month	Treasur	5.89 1 5.58 1	Bond Year wo year hree year			Sep UK NOTK	87.25 XNAL UK G	87.53 LT FUTURE	+0.87 S (LIFFER' !	88.00 E50.000 32	87.22 Inda of 100	*
oker loan rate d.funds		Three month Six month One year		5.64 1	ive yeur O-year O-year		6.09 6.51	Jun Sen	Open 109-03 108-19	Sett price 109-10 109-26	Change +0-05	High 109-12 108-31	Low 108-24	-

Ecu

BOND	FUTURES	AND	OPTIONS
			01 114110

	Open	Sett price	Change	High	Low	Est. vol.	Open int.
Jun	116.54	117.00	+0.58	117.02	116.50	148,405	103,552
Sep	116.12	116.58	+0.58	116.60	116.08	46,468	55,619
Dec	115.90	116.38	+0.58	116.12	115.90	32	2,106
M LONG	TERM FRE	WCH BOND	OPTIONS	(MATIF)			
Strike		CAL	LS			PUTS	
Price	Jul	Se	p 1	Dec	Jul	Sep	Dec
114	-	2.0	4		0.07	0.44	0.94
115	-	2.1	9	-	0.16	0.68	
116	0.98	1.5	3	-	0.40	1.01	-
117	0.46	5 1.0	6	-	0.93	1.50	-
116	0.20	0.6	5	-		2.10	-
Est vol te	ital. Calle 30.17	75 Pure 30.7	29 . Prenou	us day'e ope	roint, Calls	141,645 Puts	124,019.
Germ	any						
■ NOTE	MAL GERM	AN BUND F	UTURES	(LIFFE)' DA	M250,000 10	Oths of 10	0%
	Open	Sett price	Change	High	Low	Est. vol	Open Int.
	96.12	96.34	+0.20	96.42	65.01	61402	55278
7m							

	4		-						. 13	FFE fut	ares não	o trade	d on A	PT. All Open Interest figs	are to	previo	un day.			
UK GIETS P	RIÇE	S		14.	20.00	9.3	9785, L. P. 25	g Africa) .X			4.	4.72				
Notes	int 1	rield	Price £	+ 0 -	High	995 Low	Notes	HK '	rieid Reci	Price £	+ OF -	_ 1 High	995 Low	Motors	(1)	Yieki	Price £	+07-	1	995 _
Shorts" (Lives up to Five Y	turs)						Trans 64pc 200411	7.23	7.72	9313	+35	9313	96.7	Index-Linked #4	,,,					
Exch 104epc 1995	10.20 12.41	6.43 6.32		→	101% 104%	100 <u>17</u> 1024	Come 9 ½ pc 2005	6.49	7.73	111	+10	111	1035	2pc '96	1.07	3.03 2.87 3.30 3.37 3.43	211	1	211	201, 108, 1661
14pc 1996	13.38	6.38	104%	_	1064	1045	Trees 12 ¹ 20c 2003-6 Trees 0 ¹ 20c 20054‡	6.70 8.04	7.78	128)3	**	12813	11943	21206 '01	200	3.30	1124 1764	- 11	112) 1754 1734	106,
15 apr 1998##	14.17	6.39	107 📆	_	1085	10712	7% pc 200811			105334	**		87%	212pc '0378.65	2.08 3.02	3.37	173.	- 71	173.3	161
Exch 13%pc 1996##	12,50	8.45	106	_	1074	105[]		7.75	7.78	9915	*10	6637	924	4 apc '04#(135.6)	3.04	3.37	173.5 115.7	2	115,2	108, 168,
Cooversion 10pc 1996	9.58 12.08	6.65	104		10443	103点	Apr: 2002-611	7.88	7.74	1012		10172	934	2pc '06	2.10	3.43	161	+/4	161	168
Treas 13 4pc 1997## Exch 10 2pc 1997	9.93	6.83 6.86	109(3		10933	108,7	Treas 11 kpc 2003-7	9.59	7.78	122,%	+4	12313	11313	21 ₂ 0c '09	3.25 3.31	3.47 3.50 152 155 157	164%	+3	1045	152
Treas Cev 7pc 1997##	7.07	6.78	105 ¹ 4 9842	-7	10513	104		8.03	7.74	10533	+3	105%	67 <u>43</u>	21206 13 (89.2)	3.34	3.30	17043 1405	- 4	170년 1405	157
Treas 6-kmr 1067##	6.45	6.98	1031,	74	881	9718		8-83	7.77	13513		135,3	1251.	21 ₂ pc 1581.6	3.39	3.55	150.1	- 13	160.3	129
Exch 15pc 1997	12.81	705			103 Å 117 Å	100 ₃ };	man also sman 44	6,17	7.74	110,7		1105	701%	2 2pc 2083.0	3.39	357	150.5 144.7	77	150 à 144 à	132
64 pc 1998	9 18	7.09	105.2		108.	102	Treas 8p; 2009	7.85	7.75	101 🔀	-4	102,	94	2120 244 97.7	143	3.55	12011		1202-	109
reas 714pc 1996##	7.23	7.11	100%	=	100%	98.2								42mc '30#(135.1)	3.43	3.56	1193	74	11 9 2	198
reas 6%pc 1995-98‡‡	8.83	7.15	98%		9953	9417								Prospective real reder	notion	mate on	projec	ated in	Retton	of M
Treas 15 ¹ 2pc '98;‡‡	12.49	7.15	1244	_	1241	120%								10% and (2) 5%. (b) F	oures i	n derer	dheses	show I	RPI he	en é
5ach 12oc 1996	10.51	7.25	1142	_	1744	1091								indexing (le 9 months :	orior to	RELIEF !	and hav	ve been	arline.	ted b
frees 9½pc 1999‡‡	8.89	7.28	10623	+3/2	10835	100%	Over Filteen Years							retiect rebasing of RP	7 to 10	26 in F	abruer	1887.	Conu	are in
Trees Fity Rate 1990			100 24		100%	9933	1 reas 0 1/4pc 2010	7.23	7.76	2673	+4	B633	79.8	factor 3.945. RPI for S	eptemb	er 1994	: 145.0	and to	r April	1995
ech 12'ape 1999	10.55		116,	+4	1187	131	Conv 9pc Ln 2017 ##	6.10		11144	-7	117.4	10133	149.0.						
roes 10 ² 290 1999	9 49	7.31	11031	-/-	11033	10533	1/mm 9oc 2012±±	8.06	7.78	11113		1113	1023							
reas 6pc 1999 #	6.30	7.30	951		954	8912	Treas 512pc 2006-12tt	7.07	7.57	774		79.2	721		_	_				
Coversion 164pc 1999	9.27 8.46	7.38 7.37	1105	+	1105	105%	Treas 8pc 2013##	7.83	7.76	1027		1024	9313	Other Fixed I	nter	est				
W	0.40	1.31	108 %	*10	1004	100}}	74 pc 2012-13##	7.78	7.77	985	-1	9912	917							
							8pc 2015	7.78		102554 102554		10217			,	riekt				195 _
							Treas 8 % pc. 2017##	7.92					935	Notes	<u> </u>	Red	Price E	+ or -	High "	~~ Los
							Sect 120c 2013-17	858		11033		1 (0)3	100/3						7-	_==
							ODI 14C 2013-17	O på	7.07	38/24	+3	13933	1277	Astan Day 104 pc 2009	6.79	9.21	1168	_	110&	108
Twe to Fiftheen Years Insen 13ioc 2000	16 55													11-20C 2012	9.58	9.16	120		120	116
	7.78		1234		1236	117								Ireland Cap 83 ₂ pc '10	8.02	-	106	_	100	261
8pc 2000##			105(3)4		10255	9616								9pc Cap 1996	6.65	-	104		104	10
	8.98	7.50	11113	+14	1111	10433								13pc 97-2	11.70		11114		1114	10
14pc 1998-1	11.89	7.20	117 %	<u> </u>	1173	1145	Discharge							Hydro Quebac 15pc 2011 Leeds 13 ¹ 2pc 2008	16.12	8.10	148/2		15443	138
7pc 2001 ##	7.19	7.51	97.	+4	97 3	9033	Currecte 4pc	8.02	_	49%	+14	49%	451-	Liverpool 3 2pc kned	10.11	-	133 ¹ 2		133 2	126
9-laps 2002 8ps 200311	8.73		1315		1113	10334	War Loan 3120ctt	7.78	_	45	-14	45.2	4013	LCC 3pe '20 Aft	8 75 6.70	-	-40		-40	3
8pc 2003 # 18pc 2003	7.85		메랜		10135	945	Com 31200 '61 Aft.	5.78				505	5713	Manchester 11 lanc 2007	8.03	9.10	3412		3412	317
	8.70		11373		11355	105%			-	60%	-4			Mel. Wir. 30c B	4.77		117	_	117	1131
resu 11 200 2001 -4	9.76	7.60	11717	74	1177	11033	Tream 3pc '86 Aft	8.04	-	37.2	+76	37	344	N'wide Angita 37spc 2021.		7.78 4.16	72 143b		. 72	99
unding 31 ₂ pc 1999-4	4.73	742	74	-3,	BO.	72,7	Consols 21 ₂ pc	7.95	-	31/42	-10	31 %	2533	4 to L 2024	-	4.10				136
omersion 91 ₂ pc 2004	8.52	7.75	111選	+16	111景	103,	Treas. 21 ₂ pc	7.95	_	31,7	-4	315	287	Utel Mex States 16 ¹ 20c 2008	14.04	421	13812		1387	1237
Top stock 11 Tox-tre	M 15 M		lanta on			Access	n books and Ex charleng C								17.04	-	11712		139	1131

FT-ACTUARIES	FIXED	INTERES	וסאו דנ	CES											
Price Indices UK Gilts	Tue Jun 6	Day's change %	Mon Jun S	Accrued	xid acij. ykd		Low Jun 6		yield — Yr. ago	Mediun Jun 6		yield Yr. ago		Jun 5	
1 Up to 5 years (23)	122.83	\$0.0+	122,80	2.38		5 yrs	7.43	7.43	8.17	7,45	7.46	8.39	7.50	7.50	8.50
2 5-15 years (21)	147,98	+0.07	147,88	2.12	8.44	15 yrs	7.77	7.78	B.44	7.77	7.78	8.58	7.91	7.92	8.89
3 Over 15 years (9)	167.05	+0.04	166.98	1.93	6.06	20 yrs	7.78	7.78	8.38	7.78	7.79	8.56	7.90	7.91	8.89
4 trredeemables (6)	191.34	+0.12	191.11	1,22	6.36	bred.†	7.86	7.86	8.40						
S All stocks (59)	143.76	+0.05	143.69	2.21	5.16										
									on 5%			- kuffatio	10%-		
Index-linked							Jun	6 Ju	n 5 Yr.	ago	Jun	8 Jun	5 Yr.	ago_	
6 Up to 5 years (2)	196.15	+0.04	196.07	0.92	2.57	Up to 5 yrs	2.9	98 2	.99 3.	78	1.4	6 1.	47 2	.81	
7 Over S years (11)	167.92	+0.15	187.65	1.34	1,73	Over 5 yrs	9.9	51 3	.52 3.	80	3.3			62	
B All stocks (13)	187.90	+0.14	187.65	1.30	1.81		_		-			_			

7 (Jp to 5 years (Over 5 years (1 VII stocks (13)		196.15 167.92 187.90	+0. +0. +0.	15 1	96.07 87.65 87.65	0.92 1.34 1.30			lp to 5 yrs iver 5 yrs	2.98 3.51	2.99 3.78 3.52 3.80	1. 3.		47 2.81 33 3.62	
Aver	ege groes redeni	ption yeld	s are sho	m ebove.	Coupon	Bends: Lo	w: 0%-T4	46; Medic	um: 8%-1	04%; Hg/c 114	e and over. †	Flat yield, yad Ye	or to data.			
_	MVED II															
FT	FIXED II									GILT	EDGED		INDICES			
_		JUN D	Jun 5	Jun 2	JUN 1	May 31	Yr ago	High'	Low			Jun S	Jun 5	Jun 1	May 31	May 30
	L Secs. (UK)	95.20	95.51	95.24	94.61	94.31	92.62	95.51	90.22		ed bargains	152.8	87.5	88.9	109.4	109.3

FT/ISMA INTERNAT	IONA	L BC	סאנ	SET	MCE			Mar.	485		312.16	1417		37.1.
Listed are the letest international bon		Offer (ste secondary market. Latest prices at lesued				Yieki				_	
U.S. DOLLAR STRAIGHTS		OIAL .	<u> </u>	1834						Isoued	Bid	Offer	_	_
ABBEY NATL TREASURY 5 97 _ 1000	985	98%		5.88	United Kingdom 7 ¹ g 97 5500 Valkswagen last Fin 7 03	1001	104%	+14	5.01	Abbey Na# Treesury 8 03 £ 1000	9612	985	+1,	82
Abbey Ned Treesury 612 03 1000	964	9912	٠.	6.62	World Bark 0 15 2000	24%	2512	şiş.	7.01	Allisroe Licia 11 ¹ g 97 2 1000 British Land 8 ² g 23 2 150 Derman, 6 ³ g 98 2 150 Haffox 10 ² g 97 2 100 Haffox 10 ² g 97 2 100 Harroen 10 ³ g 97 2 100	1053	107-2	4 <u>7</u> 8	
African Dev Bk 73 23 500	1014	101%	Ť	7.27	World Bank 0 15 2000 World Bank 57, 08 3000	9514	95%	44.	6.62	Dermark 64: 98 2	20°4	96-i,		9.5 7.4
Alberta Province 75g 96	104	105	4	B.03	World Bank 8% 00 1250	1127	114%		5.95	EB 9 08 C 1000	100	100	418	80
Austra 8 ¹ 2 00	10912	1093		6.07						Halifax 103 97 £ 100	1047	105 ¹ 8	•	7.2
Barden-Wuertt L-Pin 8 ¹ s 00 1000 Bards Ned Gemeenture 7 99 1000		107% 1044	78	6.14 5.97	SWISS FRANC STRAIGHTS					Hanson 10 ³ p 97 £ 800	10512	1057	4	7.7
Barth. Ned Gemeentan 7 59 1000 Beiger Vereinteit 8½ 00 500 Beigum 5½ 03 1000 BFCE 7½ 87 150 British Cotumbie 7½ 02 500 British Gas 0.21 1500 Canada 6½ 97 2000 Cheung Kong Fin 5½ 98 500 Chura 0½ 04 1000 Council Europe 9 89 100 Council Europe 9 99 500 Dermark 5½ 98 1000 Cast Sportis 9½ 99 500 Dermark 5½, 98 1000 East Japon Flahway 6½ 04 600 ESC 8½ 96 183	1073	107%	ئ	6.14	Asien Dev Bank 0 10 100 Austra 4 ¹ 2 00 1000	100 1075a	103 101 Å	448	5.51 4.11	HSBC Holdings 11.69 02 £ 158	113-3	118	4	ELEC
Belalum 512 03	9374	9312	걐	6.56	Austra 4 ¹ 2 00 1000 Council Europe 4 ¹ 4 98 250 Dommark 4 ¹ 4 99 1000 EB 6 ¹ 4 04 300 EBc de France 7 ¹ 4 06 100 Frielend 7 ¹ 8 99 300 Hyundal Motor Fri 6 ¹ 2 97 100 toeland 7 ¹ 8 00 100 Council Motor Fri 6 ¹ 2 97 100 toeland 7 ¹ 8 00 100 Council 6 ¹ 4 03 400 Crazio 6 ¹ 4 03 400 Crazio 6 ¹ 5 05 100 SNCF 7 01 450 World Bank 5 03 150 World Bank 5 03 150	1013	102	₩,	4.05	Rely 10 ¹ 2 14 £ 400 Japan Dav Bk 7 00 £ 200	1115	1121	4	9.10
BFCE 74 97 150	703	1033	4	5.87	Denmark 44, 99 1000	101	1014		3.99	Land Secs 9½ 07 £ 200 Orazlo 11½ 01 £ 100 Powesgen 8½ 88 £ 250 Seven Trent 11½ 99 £ 150 Tokyo Bec Power 11 01 £ 150 Alban National 0 6 A72	97 ¹ 8	97 ¹ 4 1067a	1. 1.	7.80 8.60
British Columbie 7% 02 500	1074	1075	4	6.43	EB 6% 04 300	1103 ₈	11012	448	5.31	Ontado 11 ¹ a 01 £ 100	1133	1133	7	80
British Gas 021 1500	14%	145	-4	7.66	Elec de France 714 06 100	112	11212		6.70	Powergen 87 98 £ 250	10312	103%		8.2
Canada 6 ¹ 2 97 2000	1014	1017	هـ	5.84	Finland 74 99 300	1094	110	+14	4.70	Severn Trent 1112 99 £ 150	1123	11252	418	7.84
Chang king mi 3-2 so	94-2	95 ¹ s	4	7.46 7.46	hydroal Wolor Hri 8*2 87	107	100 112	44	5.13 5.08	Tokyo Elec Power 11 01 £ 150	1137	1144	44	8.00
Council Europe 9 98	1023	10212	+14	5.80	Kohe 63x 01 240	1075	10512	**	4.90	Abbay National 0 96 N2S	90-7	9112	+1	7.92
Credit Fonder 912 99 500	111	1114	44	6.08	Ontario 6 ¹ 4 03 400	108	10512		5.23	Conditional & DI EE	1064 933	10714	.1.	· 8.05
Dermark 54, 98	997	1004		5.79	Quebec Hydro 5 98 100	9112	93		5.97	Elec de France 8 x 22 FFr 3000	10714	937	-3	8.08
East Japan Railway 65 04 600	100 ³ e	100%	4	6.56	SNCF 7 04 450	1134	114		6.17	SNCF 914 97 FF1 4000	1043	1045	1	6.64
BCSC 84 96	1034	10378		5.55	World Bank 5 03 150	100 ¹ 2	101	2	4.90		107	10-4	•	
ECSC 84, 96 153 EEC 64, 98 100 EB 74, 96 250 EB 94, 97 1000	102 ¹ 4 102	102 ¹ 2 102 ¹ 4	44	5.94 5.79	World Bank 7 01 600	1114	112		4.71	FLOATING RATE NOTES				
EB 94 97 1000	1073	10772	Ξ,	5.88	YSN STRAIGHTS Begjum 5 98					leaved	Bk	1 0		Cobs
Bec de France 9 98 200	10712	107%	•	5.97	Belcum 5 98 TS000	1124	11212	ᆚ	2.13	Abbay Nat Treasury -/ 99 1000	99.74	4 00	82	5.8750
Fe-Im Rock Jacon 8 (9) 400	1004	1093 ₈	4	6.34	6B 65 00 100000	1197	12014	4	219	Benkemerica 1 98 750 Belgium 1 97 DM 500 BFCE -0.02 98 350 CCCE 0 00 Eou 200	99.60		70	6.4375
Export Dev Corp 8 ¹ 2 98 150 Federal Natl Mort 7.40 04 1500	10912	109%	4	6.04	Er-Im Bank Japan 43, 98 105000	1112	1114	3,	2.80	Belglum (97 DM 500	100.12			5.3750
Federal Natl Mort 7.40 04 1500	107	1074	4	6.47	Inter Amer Day 7 ¹ 4, 00	123	12314	·	2.27	9FCE -0.02 95	29.94			6.0425
Friend 6% 97	100%	102 ¹ 8	٦,	5.95 6.19	kely 3 ¹ 2 01	102 %	100	-34	3.00	CCCE 0 00 Ecu 200	99.33		40	5.9375
Ger Fler Caratai Dis 98 500	1034	10312	-4	5.95	Japan Dev Sk Sla Dt 40000	1122	1123g 1223g	4	1,95	Credit Lycomie J. (n)	99.24 97.17		A2 ·	8.1502 9.0975
Printerial 64: 97 3000 Ford Motor Credit 64: 98 1500 Gen Bec Capital 03: 98 500 Ind Bit Japan Pin 75: 97 200 Inter Amer Dev 75: 98 200	1024	1034	4lg	625	Nicoon Tel Tel 5% 96 Scoon	1057	106%	-4	2.56 1.29	CCCE 0 00 Ecu 200 Credit Lyonnais 1/4 00 300 Demmark -1/4 98 1000 Dreadher Finance 1/5 98 DM 1000	90.17			81875
Inter Arner Day 7 2 98 200	101%	1024		6.00	Nonesy 5% 97 150000	106%	107		1.23	Dreadner Finance to 98 DM 1000	100.00			ARES
Ind Firence 54 98 500	96 ¹ 8	981	-5	5.83	SNCF 64, 00 30000	120%	12012	34	2.20	Ferro del Stat 0.10 97	99.89			6.1350
Inter Amer Dev 7 ⁵ g 98	904	914	744	7.83	Japan Dev Bk 5 99	1173	110	4	2.84	Ferro del Stat 0.10 97	100.16			8.7500
Know Elec Preset 63- (1) 1360	247	110 ¹ 4	4	6.25	Sweden 45 98 150000 Works Bank 51 02 250000	IUG	108 ¹ 8		1.53	2000 Aziy 4 98 2000	100.00			63125
LTCS Fin 0 97 200	10212	103	_	6.28	MONG DRIK 2-1 05 590000	110-2	1165	⊿ 4	260	I KR Boden Ware Co. 1, or	900.11 99.87			6.5300 6.2500
Korea Bec Power 6 ¹ g 03 1350 LTC8 Fin 0 97 200 Matsuchita Bec 7 ¹ 4 02 1000 Norwey 7 ¹ 4 97 1000 Norwey 7 ¹ 8 97 1000 Oster Korhicilbank 8 ¹ 2 01 200 Oster Korhicilbank 8 ¹ 2 01 200 Oster Korhicilbank 8 ¹ 2 01 200 Oster Korhicilbank 9 ¹ 5 01 200 Oster Korhicilbank 9 ¹ 5 01 200 Oster Power 9 96 150 Oster Power 9 96 200 Oster Power 9 96 150 Selnsbury 9 ¹ 4 96 150 Selnsbury 9 ¹ 5 150	104%	105 ¹ a	4	6.49	OTHER STRAIGHTS					Lloyde Slank Perp 8 1100 800 Hollands 1 00 650 Hollands 1 98 100 Nove Scotta 2 98 500 Ontario 0 99 2000 Santia 0 96	90.04	-		6.5876
Narway 7 ¹ 4 97 1000	10212	1024	3	5.78	FINLAND 9 04 LFr 5000 RS Deut Industrix 8 ¹ / ₂ 09 LFr 1000 ABN Amro 6 ⁵ / ₈ 00 Fl 1000	100%	1015		7.85	Malaysia 14 00 650	99.45			64000
Ontario 73º 03 3000	1941	105		6.68	Gerdinance Lux 91g 99 LF7 1000	1051	-		7.49	New Zeeland -1 ₉ 98 1000	99.87	99.	94	6.1676
Protocol 53: 02 1000	111 9514	1113 ₂ 95 ¹ 2	3	6.76 6.60	NS Deut Industrik 612 08 LFr 3000	104	100		7.77	Nove Scota 2 99 500	99.76			6.3750
Ouster Hydro 64 96 150	1095	1104	3	841	ABN Armo 65 00 F	103 ¹ 4 102 ⁷ 8	105 ¹ 2 103 ¹ 4	44	5.83	Renie 0 96 500	69.51			6.1250 6.0625
Quebec Prov 9 96 200	108	107	ᅸ	6.36	Bell Cerecia 10 ² 1 99 CS 150	10912	110%	+5g	6.51 7.82	Societa Generale (196	98.56 98.84			63125
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\$AS 10 99 200	1107	11112	414	6.59	EB 1012 98 CS 130	1074	108		7.19	SUBS DK Victoria (LOS 90 196	100.00			6.0875
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Untack kingdom 7% 02 3000	105%	106	-	5.81 6.24	Oster Kontrolibenk 10% 99 C\$ 150	1091	1097	4	7.86		Price	Bid O	Ger :	Prem.
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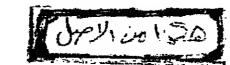
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Attention switches to European high-yielders

European currencies were the focus of market attention yesterday as further evidence emerged of investors returning to high yielding markets, Pta86.19.

writes Philip Gowith.

Italy Sweden and Spain
were all the beneficiaries of
buying interest as money flowed out of the D-Mark. This process was also encouraged by speculation that the Bundesbank might allow an easing in the repo rate today, from 4.51 per cent.

Renewed talk about the lira returning to the European exchange rate mechanism was the initial catalyst for buying, although the lira later gave back its early gains. After appreciating as high as L1,144.75 against the D-Mark at one stage, it finished in London at L1,152.

The Swedish krona was helped by a rise in the repo rate, in response to inflationary pressures, to 8.66 per cent from 8.41 per cent. The krona finished at SKr5.095 against

the D-Mark from SKr5.134. The peseta also had a good day, slipping below Pta86 to finish at Pta85.89, from

Sterling again had a steady day, with the exchange rate index closing at 84.3 ahead of the monthly monetary meeting today between the chancellor and the governor of the Bank of England. The ERI stood at 84.4 when the two met last month.

The dollar has shown little trading direction this week, but managed to finish firmer at DM1.4188, from DM1.4074, and at Y85.235 from Y84.645. The market has taken heart from its ability to stay above DM1.40, despite the very weak US employment report last Fri-

E Pound in Men York Jun 5 £ spot 1 mth 6 mOs

■ The focus today will be with the Bundesbank. Nobody is expecting anything more than a small trimming in the repo rate at best, so the currency impact is likely to be limited. Mr Julian Jessop, international economist at HSBC Markets in London, says one possible reason for the Bundesbank to leave rates

The majority market view still favours one further cut in German rates. The September euromark contract is discount ing three month money at 4.3 per cent, compared to 4.46 per cent presently.
One achool of thought

unchanged would be in order

to avoid stimulating talk about

an imminent cut in official

favours an easing of rates at next week's Bundesbank council meeting on the grounds that this will be just ahead of the G7 summit in Halifax. This will show Germany in a good light, allowing it to claim that it is living up to its internaAgainst the D-Mark (DM per £)

1994

tional responsibilities by easing exchange market pressures through a reduction in interest rate support for the D-Mark.
The Bundesbank unexpectedly cut the discount rate at the end of March, not long before the annual meeting of the International Monetary

Fund in Washington DC. recent days, despite some The flow back towards adverse political news. It con-

so-called "high yielding" mar-kets like Italy, Spain and Sweden is in part the result of the recent rally in interest rate D-Mark. markets, which is showing signs of coming through on the

currency front Another European market still attracting considerable attention still is France. A point rise. widely held view after the the presidential elections was that a commitment to franc fort was incompatible with the stated priority of cutting unemploy-

tions against the franc on this basis, but the franc has, if anything, been firmer. late assistance Analysts are now speculating that if these traders are forced to cover their positions, the franc could climb back to around FFr3.45 against the

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onto these gains is the source of some dispute. Sterling has held its own in

ment. Many traders took posi-

tinues to take its lead almost entirely from the dollar, while also benefiting from the comparative weakness in the

MONEY RATES

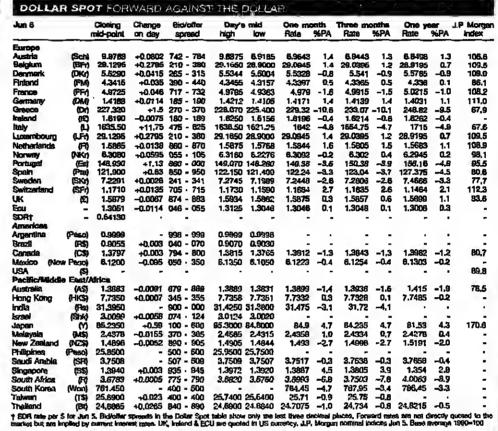
There is little expectation of a shift in rates today, although there is a minority of opinion arguing in favour of a 25 basis

Money market rates firmed slightly, with three month LIBOR trading at 61 per cent. from 614 per cent. In its daily operations the Bank of England cleared a £700m shortage with £535m assistance at established rates and £175m

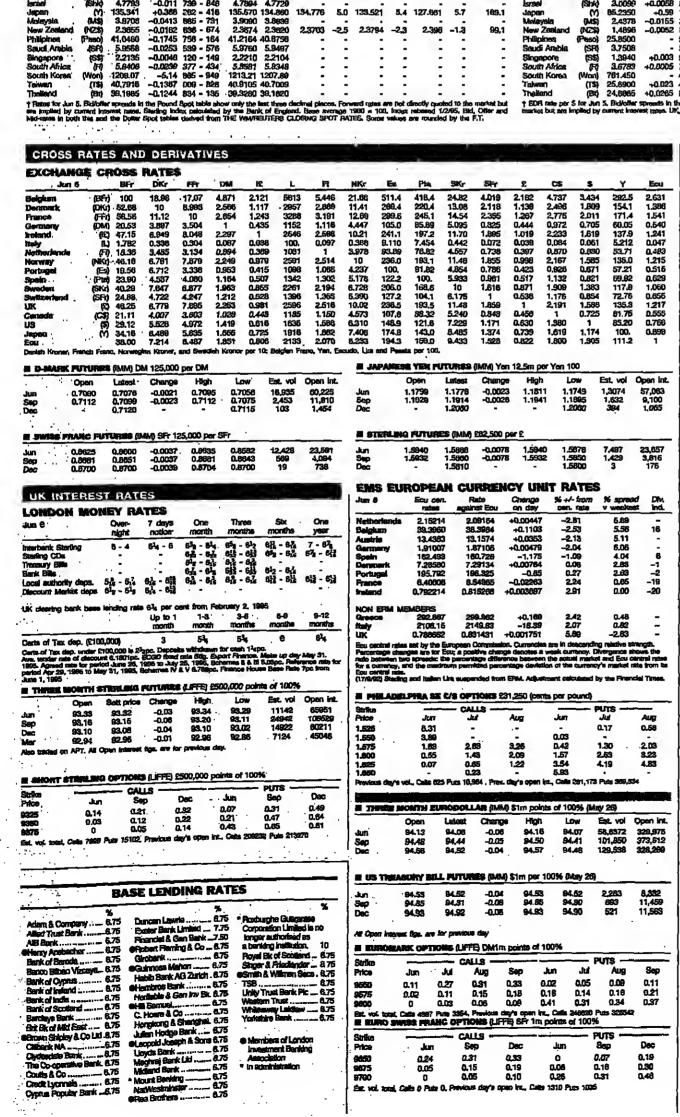
In the futures market the September short sterling contract lost ground, finishing at 93.15, from 93.21.

D-Mark. Whether it could hold 194.790 - 194.980 122.710 - 122.789 4764.90 - 4762.20 3000.00 - 3000.00 0.4738 - 0.4757 0.2895 0.2895 37:717 3.7317 2.3445 2.2465 7801.73 - 7802.07 4912.00 - 4915.00 Kuwait Polent Russia U.A.E.

	-	_		GAINST			_	-				_	
Jun e		Closing mid-point	Change on day	Bid/offer apread	Day's	Mid	One mo	onth %PA	Three and Plate	%PA	One y		Bank o Eng. Ind
Europe													
Austria	(Sch)		+0.0606			15.7847	15.6178	1.7	15.7706	1.8		-	106.
Belgium	(BFr)		+0.249	287 - 799		46.0070	46.1883	1.7	46.0583	1.7	45.4483		109.
Denmark	(DKr)	6.7799	+0.0289	728 - 857	8.7857	6.7482	8.7828	-0.5	a7746	0.2	6.7438	0.4	110.
Finland	(FM)	6.8937	+0.0265	877 - 996	5,8998			-	-	-		-	87.
France	(FFr)	7.8955	+0.0397	921 - 989	7.8994		7.9034	-1.2	7,914	-0.9	7.8816		
Germany	(MCI	2.2528	+0,0088		2,2564	2.2447	2.2484	1.8	2.2418	20	2.2022	2.2	171.
Greece	(D)	360,950	+0.857	788 - 132	362.335								68.
ireland	. (162)	0.9808	+0.0004	799 - 816	0.8824		0.9804	0.5	0.9802	0.2	0.9806		
Italy	<u>(4)</u>	2596,93	+7.7	500 - 886		2578,11	2806,43	-4.4	2623.93	-4,2	2895.43		68.
Luxembourg .	(LF1)	48.2533	+0.249	267 - 799		46.0070	46.1883	1.7	46.0583	1.7	45,4483	1.7	109.
Netherlands	_ (FI)	2.5191	+0.0112	175 - 208	2.5216		2,515	2.0	25113	1.2	2.4588	24	109.
Norway	(MKr)	10.0162	+0.0523	094 - 230	10.0235		10.0075	1.0	6.9839	1.3	9,8566	1.8	98.
Portuge!	(En)	236,479	+0.797	300 - 857		235.738	235,814	4.4	238.784	-3.9			95.
Spain	(Ptn)	193,559	+0.182	425 - 693		192-969	194,050	-3.1	195.134	-3.3	200.159	-3,4	81.
Sweden	(SKI)	11.4787	-0.0447	675 - 899		11.4463	11.481	-0.2	11,4855	-0.2	11.5041	-0.2	78.
Switzerland	(SFr)	1.8594	+0.0136	581 - 607	1.8616	1.8439	1.8547	3,0	1.8444	3.2	1.7984	3.4	113.
UK.	(E)	-			-	-	-		-	-	-	•	84.
Scu	-	1.2167	+0.0055	159 - 175	1.2175	1.2110	1,2187	0.0	1,2155	0.4	1,2083	0.7	
SDR†. Americas		1,019800		7	-		•	-			•	•	
Argentina	(Peso)	1.5876	-0.0068	871 - 881	1.5931	1.5860		-		-	-		
Beazil	(F15)	1.4378	-0.0014	350 - 406	1.4408	1,4347		-		-		•	
Canada	(CS)	2.1908	-0.0044	897 - 919	2.1959	2.1874	2.1933	-1.4	2.1961	-1.0	21869	0.2	82.
Mandeo (New	(Paso)	6.7177	-0.1928	911 - 442	6.7442	6.7075		-		-		-	
USA	(25)	1.5879	-0.0067	874 - 883	1.5934	1.5862	1,5875	0,3	1.5857	0,6	1.5699	1.1	89.
Pacific/Middle	Etp.t/	Africa '											
Australia .	(AS)	2.2046	-0.0239	032 060	2.2060	2.2017	2.2068	~12	2.2102	-1,0	2.2195	-0.7	76.
Hong Kong	(FRCS)	12.2820	-0.0511	777 - 883	12.3243	12.2701	12,278	0.4	12.2686	0,4	12.2017	0.7	
India	(17:3)	49.8506	-0.2116	285 - 726	50.0170	49.8070		-		-	-	-	
Israel	ISHO	4,7793	-0.011	739 - 846	4.7894	4.7729		-				-	
Japan	(4)	135,341	+0.368	262 - 416	135,570	134.860	134,776	5.0	135,521	5.4	127.661	5.7	169.
Malaysia.	(MAS)	3.8708	~0.0413	685 - 791	3,9090	3.8699		-		-			
New Zealend	(NZ\$)	2.3655	~0.0162	636 - 674	2.9674	2.3620	2,3703	-2.5	2.3794	-2,3	2.398	-1.3	99,
Philipines	Cose	41.0460	-0.1745	758 - 164	41,2164	40.8758		-					
Saud Arabia	(SF)	. 5.9558	-0.0253	539 - 576	5,9760	5.9497		-		-		-	
Singapore	(53)	2,2135	~0.0046	120 - 149	2,2210	2.2104		-					
South Africa	40	5.8408	-0.0238	377 - 434	5.8581	5.8348	-	-		-	-	-	
South Korea	(Won)	1209.07	-5.14	985 - 949	1213.21			-		-		-	
Teiwau .	(TS)	40,7916	-0.1387	009 - 828	40.9105			-			-	-	
Theliand	(Bt)	39,1985	-0.1244	834 - 135	39,3280			-					



June 6		Over night	One	Three	Sbx	One	Lomb. Inter.	Dis. rate	Repo
Belglum		41/4	45	41	44	5	7.40	4.00	
week ag	0	41/2	44	61	5%	52	7.40	4.00	
France	_	7½ 7%	7% 7%	7¼ 75a	6% 7%	6 <u>4</u>	5.00	-	8.00
Week ag	O	45	4%	436	4%	6일 4골	5.00 6.00	4.00	6.00 4.51
week ac	ю	412	41/2	41/2	48	4%	5.DO	4.00	
iretand		634	6%	68	62	62			6.25
week ap		6 <u>8.</u> 10%	674	- 6U	6 <u>3</u> 10%	74	-		6.25
italy week ag		10%	10 <u>53</u> 10 <u>53</u>	103 108	11	10% 11å		7.50 7.50	
Netherlask	-	414	44	44	44	444	_	5.25	
week ag	0	4.5	42	4%	84	4%	-	5.25	i -
Switzerlan		<u>3</u>	3	3% 34	翠	34	2,625	3.00	
week ag US	0	2% 6	3 <u>4</u> 5 6	5%	3% 5%	31 / 5%	6.625	3.00 5.25	
week ag	0	ĕ	58	6	6	6	_	5.25	
Japan		1%	114	15	3	. 1	-	1.00	
week ag	0	134	11/4	14	7 %	176	_=	1.00	<u></u>
E \$ LIBO		DN							
week ag		-	6 <u>1</u>	5 <u>2</u>	6 <u>1</u> 5 <u>1</u>	64 5%	Ξ	-	_
US Doller		_	5.80	5.72	5.60	5.55	_	_	
week ag		_	5.80	5,80	5.78	5.77	_	-	
EÇU Linke	d Ds	-	6%	61/2	64	614	-	-	-
week ag SDA Linka		-	8%	6 <u>1</u> 63	61/4 37.4	6% 3%	-	-	-
Week 20		-	35 35	44	4.	4%	Ξ	_	
S LIBOR Inte	rbank fisher	10205 (11	e offered	i races for	\$10m auc	ted to the I	narket by	four rel	lerence be
az 11em et. Weszminster.									
Mid rates on EURO							SUR LIN	wag Det	speak (res
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Belgian Fra		- 414	458 -		8 - 4 ¹ 2	44 - 45	412 -		5/è · 4/2
Danish Kror	ne 61 ₂	. 6	65g -	63 6	4 - 612	$6^{3}4 \cdot 6^{3}$	634		64 - 61
D-Merk Dutch Guild	4/6	416	45 -	4% 4	2 . 45	4/4 · 4/4 4/4 · 4/4	44	4,0	44 . 44
	c 7.	- 414 - 774	74	7.2 7.	- 7,2	袋:线	617	6!4	4/4 - 4/1 6/4 - 6/1
Franch Fran	Fec 91	812	9, -	81 6	93	10% - 9%	1012 -		114 - 10
Portuguesa Spenish Per	seta 91 ₂	- 63 ⁸	91 ₂ .	93 9	- 914	914 - 914	9%		
Sterling	91 ₂	- 6 ¹ 2	6,6 -	93 ₁ 93 53 61	- 914 - 674	632 - 633	97 ₂ . 63 ₄ -	- 65 ₈	10년 · 10 7 · 8년
Portuguese Spenish Per Sterling Swiss Prand	61 ₄	- 61 ₂ - 313	65 - 34 -	93 ₈ 93 64 61 34 34	4 - 914 4 - 614 4 - 31 ₈	612 · 613	9% 634 33	6 ⁵ 8	7 65 31 - 31
Portuguesa Spenish Per Sterling Swiss Franc Can, Dollar	91 ₂ 61 ₄ 3,5 7,6	- 6 ¹ 2	6,6 -	93 ₈ 93 64 63 34 34 74 74	- 914 - 614 - 318 - 718	613 - 613 314 - 314 715 - 714 518 - 514	9% 6¾ 3¾ 7 5%	65 64 63 513	7 · 812 374 - 377 674 - 64
Portuguesa Spentah Per Starling Swisa Franc Can, Dollar US Dollar Italian Lira	91 ₂ 63 ₄ 3,3 7,4 0,4 101 ₈	- 6 ¹ 2 - 3 ¹ 4 - 7 ¹ 4 - 5 ¹ 6 - 10	65 - 34 - 74 - 6 - 5 10 ¹ 2 -	93 ₈ 93 63 63 31 ₈ 33 74 73 53 6 103 103	- 94 - 64 - 31 - 74 - 57 - 107	612 - 613 314 - 314 715 - 714 518 - 514 1014 - 10	9% 6% 3% 7 5% 10%	65 64 67 513	7 · 615 374 - 37 674 - 64 813 - 57 1076 - 10
Portuguese Spentah Per Sterling Swiss Franc Can, Dollar US Dollar Italian Lira Yan	912 614 374 774 1014 1,4	- 938 - 612 - 336 - 744 - 516 - 10 - 114	65 - 3¼ - 7¼ - 6 - 5 10½ -	93 ₈ 93 63 63 31 ₈ 33 74 73 53 ₈ 6 103 ₈ 103 13 ₂ 13	- 914 - 64 - 318 - 74 - 578 - 107	612 - 613 314 - 314 715 - 714 513 - 514 1014 - 10, 114 - 11	971 634 331 7 512 4 1011	6 ⁵ 8 6 ⁷ 8 5 ¹ 3 10 ₁₄	7 · 65 34 - 34 54 - 54 51 - 54 104 - 10
Portuguese Spenteh Per Sterling Swiss Franc Can, Dollar US Dollar Italian Lira Yan Asian SSing Short term n	5612 912 614 376 776 614 1018 176 14	- 938 - 612 - 374 - 744 - 512 - 10 - 114 - 18	6	93 ₈ 93 64 62 34 34 74 74 53 8 103 104 132 14 1 ₈ 3	4 - 914 4 - 614 4 - 318 4 - 318 - 578 4 - 107 4 - 118 2 - 38 In others:	652 - 653 3& - 3& 7& - 7& 553 - 553 10& - 10, 1& - 14 1 - 7 two days	97g - 634 - 33g - 7 - 512 - 1011 - 11g - 1	6 ⁵ 8 6 ⁷ 8 5 ¹ 8 10 ₁₄ 1 ₁₄ 1 ³ 8	7 - 6 1 3 4 - 3 4 5 4 - 5 4 6 4 6 1 6 4 6 1 6 1 6 1 6 1 6 1 6 1 6
Portuguese Spenteh Per Sterling Swiss Franc Can, Dollar US Dollar Italian Lira Yan Asian SSing Short term n	912 634 776 674 1019 175 14 1005 APC CAR MONTH F	- 936 - 612 - 336 - 74 - 512 - 10 - 114 - 18 for the	6 5 10 ¹ 2 10 ² 2 10 ² 2 10 ³ 2 US Doi:	93 ₈ 93 64 63 31 ₈ 33 71 ₄ 74 53 ₈ 6 103 ₈ 10 1 ₃ 13 1 ₈ 3 ter and Ya	4 - 974 4 - 674 4 - 314 1 - 775 - 578 4 - 107 4 - 115 2 - 3 116) Park	6 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	97g 63g 7 - 51g 7 10g 1 1 g 1 1 g nosice k oftenso	6% 6% 5% 10% 11% 13%	7 · 6\frac{1}{2} - 3\frac{1}{2} - 3\frac{1}{2} - 3\frac{1}{2} - 6\frac{1}{2} \\ 6\frac{1}{2} - 6\frac{1}{2} - 10\frac{1}{2} - 2\frac{1}{2} \\ FF(5m)
Portuguesa Spentah Per Sterling Swiss Franc Can, Dollar US Dollar Italian Lira Yan Asian SSing Short term n II THREE	912 834 3.6 7.6 6)4 1018 1.6 14 1000 are call MONTH F	- 938 - 612 - 338 - 744 - 512 - 10 - 114 - 18 for the TBOSE	65 - 314 - 774 - 6 - 5 1012 - 14 - US DOM	93 ₈ 93 53 ₆ 62 33 ₈ 35 74 73 53 ₈ 8 103 ₈ 107 132 13 1 ₈ 3 ter and Ya RES (MA	4 - 9/4 4 - 3/4 4 - 3/4 - 5/4 - 10/7 4 - 1/4 2 - 3/8 n, others: High	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	97g 63g 7 - 51g 10g 11g 11g nosce. k oftenso	6 ⁵ 8 6 ¹ 4 6 ⁷ 8 10 ⁷ 4 11 ¹ 8 1 rate (7 · 6\frac{1}{2} - 3\frac{1}{2} - 3\frac{1}{2} - 6\frac{1}{2} \\ 6\frac{1}{2} - 6\frac{1}{2} - 5\frac{1}{2} \\ 10\frac{1}{2} - 10 2\frac{1}{2} - 2\frac{1}{2} \\ FFr5m) Open in
Portuguesa Spentish Per Sterfing Swiss Franc Can, Dollar Hallen Lina Yen Asian SSing Short term n M THERESE	912 634 776 674 1019 175 14 1005 APC CAR MONTH F	- 936 - 612 - 336 - 74 - 512 - 10 - 114 - 18 for the	6.5 - 3 ¹ 4 - 7.4 - 6 - 5 10 ¹ 2 - 1.5 - 1	93 ₈ 93 64 63 31 ₈ 33 71 ₄ 74 53 ₈ 6 103 ₈ 10 1 ₃ 13 1 ₈ 3 ter and Ya	4 - 974 4 - 674 4 - 314 1 - 775 - 578 4 - 107 4 - 115 2 - 3 116) Park	6 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	97g 634 - 33g 7 - 512 - 112 -	6% 6% 5% 10% 11% 13%	7 · 8% 3¼ · 3¾ 6¾ · 6¾ 6¾ · 6¾ 10¼ · 10 1,½ · 1 2½ · 2¼ FFr5m) Open in 34,073
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Portuguese Spenish Per Spenish Per Swiss Franc Cen, Dollar Hallen Lira Yan Acian SSing Bhert term in E THERES Jun Sep Dec	912 614 3 3 4 7 14 6 6 6 10 12 1 14 1 14 1 14 1 15 1 14 1 15 1 14 1 15 1 14 1 15 1 15	- 93 ₈ - 61 ₂ - 33 ₄ - 74 ₄ - 51 ₂ - 10 - 11 ₄ - 1 ₈ for the WIBOR Sett 92 93	6 5 - 3 4 - 7 7 6 - 5 10 12 - 1 10 12 - 1 10 12 - 1 10 12 11 11 11 11 11 11 11 11 11 11 11 11	93 ₈ 93 52 63 31 ₈ 34 71 ₄ 73 67 ₃ 8 103 ₈ 103 132 13 1 ₈ 13 1 ₈ 13 1 ₈ 14 1 ₈ 14 14 14 16 16 16 16 16 16 16 16 16 16 16 16 16	4 - 914 4 - 614 4 - 314 5 - 74 - 774 4 - 112 4 - 112 2 - 18 110 Peris High 92.93 93.91 94.13	6½ - 6½ - 6½ - 32 - 72 - 72 - 72 - 5½ - 5½ - 5½ - 5½ - 5½ - 5½ - 5½ - 5	9% 634 - 335 - 7 512 - 7 1014 - 112	65g 64 67g 513 10g 11g 11g 11g 11g 11g 11g 11g 11g 11g	7 · 6½ · 34 · 34 · 64 · 64 · 64 · 64 · 64 · 64
Portuguese Spentish Per Spentish Per Swiss Franc Can, Dollar Hailen Lira Yen Asian SSing Short term n E THERESE Jun Sep Dec	912 614 3 3 4 7 14 6 6 6 10 12 1 14 1 14 1 14 1 15 1 14 1 15 1 14 1 15 1 14 1 15 1 15	- 93 ₈ - 61 ₂ - 33 ₄ - 74 ₄ - 51 ₂ - 10 - 11 ₄ - 1 ₈ for the WIBOR Sett 92 93	6.5 - 3 ¹ 4 - 7.4 - 6 - 1 10 ¹ 2 - 1 ¹ 4 - US DOM: FUTUS price 89 87 11	93 ₈ 93 52 63 31 ₈ 34 71 ₄ 73 67 ₃ 8 103 ₈ 103 132 13 1 ₈ 13 1 ₈ 13 1 ₈ 14 1 ₈ 14 14 14 16 16 16 16 16 16 16 16 16 16 16 16 16	4 - 914 4 - 614 4 - 314 5 - 74 - 774 4 - 112 4 - 112 2 - 18 110 Peris High 92.93 93.91 94.13	6½ - 6½ - 6½ - 32 - 72 - 72 - 72 - 5½ - 5½ - 5½ - 5½ - 5½ - 5½ - 5½ - 5	97g	65g 64 67g 513 10g 11g 11g 11g 11g 11g 11g 11g 11g 11g	7 815 3¼ - 3¼ 6¼ - 64 613 - 51 10¼ - 10 1½ - 24 FFr5m) Open in 34,073 52,019 33,448
Portuguese Spenish Per Spenish Per Starting Swiss Franc Cart. Dollar US Dollar Hallen Lira Yasan SSing Short term n El THEREE Jun	912 914 916 917 917 917 917 917 917 917 917 917 917	- 93 ₈ - 61 ₂ - 3.1 ₆ - 7.1 ₄ - 5.1 ₅ - 10 - 11 ₄ - 1 ₅ for the PIBOR Sett 92, 93, 94,	6.5 - 3 ¹ 4 - 7.74 - 6 - 5 - 10 ¹ 2 - 10 ¹ 2 - 14 - 14 - 15 color (FETTO) price 69 .87 .11	93 ₈ 93 52 63 31 ₈ 34 71 ₄ 72 57 ₈ 8 103 ₈ 107 132 13 1 ₈ 13 1 ₈ 13 1 ₈ 14 1 ₉ 11 40.15 +0.09	4 - 95 4 - 65 4 - 31 5 - 75 5 - 107 4 - 13 6 - 107 6 - 107 6 - 107 7 - 107 117) Paris High 92.93 93.91 94.13	6½ - 6½ 3½ - 3½ 7½ - 7½ 5½ - 5½ 10½ - 10 1½ - 1 1 - 7	97s - 634 - 37s - 75 - 75 - 75 - 75 - 75 - 75 - 75 -	651 64 65 513 10,3 1 13 1 rate (12, vol. 0,786 1,453 1,995	7 · 8\frac{1}{2} · 3\chi_4 · 3\chi_4 · 3\chi_4 · 3\chi_4 · 6\chi_4
Portuguese Spenish Per Spenish Per Starting Swiss Franc Cart. Dollar US Dollar Hallen Lira Yasan SSing Short term n El THEREE Jun	912 814 814 814 814 814 814 814 814 815 815 815 815 815 815 815 815 815 815	- 93 ₈ - 61 ₂ - 3,3 - 10 - 11 ₈ - 10 - 11 ₈ - 10 From the Part of the Part	6.5 - 3 ¹ 4 - 7.4 - 6 - 1 10 ¹ 2 - 1.0 - 1 1.0	93a 93 52a 63 33a 34 74a 72 53a 8 103a 103 132 103 132 103 132 103	4 - 9½ 4 - 6½ 4 - 6½ 4 - 7½ 5 - 10; 4 - 1; 4 - 1; 4 - 1; 4 - 1; 5 - 10; 6 - 1; 9 - 2; 9 - 3; 9 - 4; 9 - 4; 9 - 5; 9 - 6; 9 - 7; 9 -	612 - 613 314 - 314 714 - 715 513 - 513 1074 - 10, 11 - 71 1 - 71	97g	658 614 626 513 10,3 11,6 13,8 11 rate (12, vol. 1,453 1,995 1,100% 1,223 1,006 1,223 1,006	7. 8\frac{1}{2} - 32 \\ 3\frac{1}{4} - 32 \\ 6\frac{1}{4} - 64 \\ 6\frac{1}{4} - 64 \\ 6\frac{1}{4} - 64 \\ 6\frac{1}{4} - 64 \\ 6\frac{1}{4} - 10 \\ 10\frac{1}{4} - 10 \\ 10\frac{1}{4} - 24 \\ 10\f
Portuguese Spenish Per Spenish Per Suring Swiss Franc Cen, Dollar US Dollar Hallen Lira Yan Acian SSing Short term in B THEREE Jun Sep Dec	912 912 914 915 915 915 915 915 915 915 915 915 915	- 93 ₈ - 61 ₂ - 3 ₁ 2 - 3 ₁ 2 - 3 ₁ 2 - 3 ₁ 2 - 10 - 11 ₄ - 1 ₈ - 10 Sett 93. 94. Sett 95.6 95.6	6.5 - 3 ¹ 4 - 7.4 - 6 - 1 6 - 1 10 ¹ 2 - 1 1 - 1	93g 9,75g 6,73g 6,73g 7,74g 7,75g 6,73g 6,73g 1,72g 1,	4 - 9½ 4 - 6½ 4 - 6½ 4 - 7½ 5 - 7½ 5 - 10; 6 - 10; 6 - 10; 7 - 20; 8 - 10; 9 - 20; 9 - 30; 9 - 30;	6§2 - 6§3 3 - 3 - 3 - 3 - 3 - 3 - 3 - 5 - 5 - 5 -	97s	658 614 628 1003 1103 1138 1 rate (1.453 1.453 1.995 1 1009 1 1009 1 1223 1 1223 1 1233 1 12	7 85 34 - 34 61 - 64 81 - 54 107 - 10 13 - 1 24 - 24 FFr5m) Open in 34,073 52,019 33,448 Open in 106033 141913
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Portuguese Spentsh Per Spentsh Per Starfing Swiss Franc Can, Dotar Us Dollar Hallen Lira Yen Asian SSing Boor term in E THEREE Liun Sep Doc Dec Mer THEREE	912 84 84 100 101 102 102 102 102 102 102 102 102	- 93 - 62 - 31 - 51 - 51 - 51 - 51 - 10 - 11 - 11 - 1	6.5 - 34 - 7 - 7 - 6 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	93g 9,75g 66 67 67 67 67 67 67 67 67 67 67 67 67	4 - 9½ 4 - 9½ 4 - 3½ 4 - 3½ 4 - 1½ 5 - 10; 4 - 1½ 5 - 10; 4 - 1½ 9 - 10; 9 - 1	612 - 613 3 - 613 3 - 613 3 - 613 5 - 613 5 - 613 1 - 72 1	97g	- 65 ₁ - 65 ₂ - 65 ₃ - 65 ₄ - 55 ₃ - 104, - 13 ₄ - 1300% - 1000%	7 8\frac{1}{2} - 3\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 3\frac{1}{4} - 3\fr
Portuguese Spenish Per Spenish Per Starfing Swiss Franc Can, Dollar US Dollar Hallen Lira Yan Asian SSing Short term n El THEREE Jun Sap Dec	912 814 814 814 814 814 814 814 814 815 815 815 815 815 815 815 815 815 815	- 919 . 622 . 623 . 624 . 744	6.5 - 34 - 7.4 - 6 - 5 10.2 - 1.2 -	93g 9,75g 66 67 67 67 67 67 67 67 67 67 67 67 67	4 - 9½ 4 - 9½ 4 - 3½ 4 - 3½ 4 - 1½ 5 - 3½ 4 - 1½ 5 - 3½ 5 - 10,7 11-11-11-11 11-11-11-11 11-11-11-11 11-11-	612 - 613 3.4 - 3.2 3.4 - 3.2 3.4 - 3.2 3.5 - 511 0.3 - 10 1.3 - 10 1.3 - 11 1 - 7 100 92.8 93.7 94.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	97g	- 65g - 64g - 51g - 11g - 11g - 11g - 11g - 12g -	7 8\frac{1}{2} - 3\frac{1}{2} - 3\fr
Portuguese Spentsh Per Spentsh Per Spentsh Per Sterfing Swiss Franc Can, Dollar Us Dollar Van Hallen Lira Yan Asian SSing Bhort term n THEREE Liun Sap Dec Mar THEREE	912 84 84 100 101 102 102 102 102 102 102 102 102	- 93 - 62 - 31 - 51 - 51 - 51 - 51 - 10 - 11 - 11 - 1	6 5	93g 9,75g 6,75g 6,	4 - 9½ 4 - 9½ 4 - 3½ 4 - 3½ 4 - 1½ 5 - 10; 4 - 1½ 5 - 10; 4 - 1½ 9 - 10; 9 - 1	612 - 613 3 - 613 3 - 613 3 - 613 5 - 613 5 - 613 1 - 72 1	97g	- 65 ₁ - 65 ₂ - 65 ₃ - 65 ₄ - 55 ₃ - 104, - 13 ₄ - 1300% - 1000%	7 8\frac{1}{2} - 3\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 2\frac{1}{4} - 3\frac{1}{4} - 3\fr
Portuguese Spentah Per Spentah Per Spentah Per Spentah Per Starfing Swiss Franc Can. Dollar Uss Dollar Hallen Lira Yen Asian SSing Short term in E THEREE Liun Sep Dec Liun Sep	912 814 916 916 916 916 916 916 916 916 916 916	- 9 ¹ ₉ · 6 ² ₂ · 6 ² ₂ · 6 ² ₂ · 6 ² ₂ · 7 ¹ ₄ · 6 ² ₁ · 7 ¹ ₄ · 1 ² ₁ · 1 ²	6	93g 9,75g 66 67 67 67 67 67 67 67 67 67 67 67 67	4 - 914 4 - 914 4 - 914 4 - 107 4 - 112 4 - 113 5 - 114 4 - 114 4 - 114 5 - 114 9 -	682 - 683 34 - 34 34 - 34 35 - 34 58 - 58 10 4 - 19 1 - 7 1	97g	- 65 ₁ 64 ₂ 65 ₃ 66 ₄ 55 ₃ 10 ₄ 65 ₃ 10 ₄ 113 ₅ 113 ₅ 1135 1135 1135 1135 1135 1135 1135 11	7 - 8\frac{1}{2} - 3\frac{1}{4} - 3\frac{1}{4} - 3\frac{1}{4} - 6\frac{1}{4} - 2\frac{1}{4} - 2\
Portuguese Spenish Per Spenish Per Spenish Per Spenish Per Starfing Swiss Franc Can, Dollar US Dollar Hallen Lira Yen Hallen Lira Yen Berp Dec THIREE Liva Sep Dec Liva THIREE Liva Sep Dec Liva THIREE Liva Sep Dec	912 84 84 100 101 101 101 101 101 101 101 101 10	- 93° - 62° - 63°	6	93g 9,75g 66 67 67 67 67 67 67 67 67 67 67 67 67	4 - 9½ 4 - 9½ 4 - 3½ 4 - 3½ 4 - 3½ 4 - 1½ 5 - 10,7 4 - 1½ 5 - 10,7 4 - 1½ 6 - 1	612 - 613 3.4 - 3.2 3.4 - 3.2 3.4 - 3.2 3.4 - 3.2 512 - 511 10.4 - 10, 1.3 - 1 ¹ 1 - 7 10 - 10 1.3 - 10 1.3 - 10 1.3 - 10 1.4 - 10 92.8 93.7 94.0 1.5 DM 1m / 1.5	97g	- 65g - 65g - 65g - 55g - 10g - 11g - 11g	7 8\frac{1}{2} - 3\frac{1}{4} - 3\frac{1}{4} - 3\frac{1}{4} - 3\frac{1}{4} - 4\frac{1}{4} - 4\frac{1}{4} - 4\frac{1}{4} - 4\frac{1}{4} - 2\frac{1}{4} - 2\fr
Portuguese Spenish Per Spenish Per Spenish Per Spenish Per Starfing Swiss Franc Cart. Dollar US Dollar Hallen Lira Yan Asian SSing Short term in E THEREE Lun Sep Dec THEREE Lun Sep Dec Lun Sep Lun Sep Lun Sep Dec Lun Sep Lun	912 84 84 100 11 16 100 100 100 100 100 100 100 1	- 93° - 62° - 63°	6	93g 9,75g 66 67 67 67 67 67 67 67 67 67 67 67 67	4 - 9½ 4 - 9½ 4 - 3½ 4 - 3½ 4 - 3½ 4 - 1½ 5 - 10,7 4 - 1½ 5 - 10,7 4 - 1½ 6 - 1	612 - 613 3.4 - 3.2 3.4 - 3.2 3.4 - 3.2 3.4 - 3.2 512 - 511 10.4 - 10, 1.3 - 1 ¹ 1 - 7 10 - 10 1.3 - 10 1.3 - 10 1.3 - 10 1.4 - 10 92.8 93.7 94.0 1.5 DM 1m / 1.5	97g	- 65g - 65g - 65g - 55g - 10g - 11g - 11g	7 - 8\frac{1}{2} - 3.7 -
Portuguese Spenish Per Spenish Per Spenish Per Sterling Swiss Franc Can, Dollar US Dollar IVan Hallen Lina Yen Asian SSing Bhort term in all THEREE Liun Sep Dec Mar THEREE Li	912 814 814 814 814 814 814 814 814 814 814	- 930 - 612 - 742 - 743 - 743 - 743 - 743 - 110 - 110 - 110 - 110 - 110 - 120 -	68 - 34 - 6 - 8 - 10 - 2 - 10 - 2 - 10 - 2 - 10 - 2 - 10 - 2 - 10 - 2 - 10 - 2 - 10 - 2 - 10 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	93g 9,75 6,6 6,7 3,7 1,4 7,6 5,8 6,1 3,5 10,7 1,5 13,5 13,5 13,5 13,5 13,5 13,5 13,5	4 - 9½ 4 - 3½ 4 - 3½ 4 - 3½ 4 - 1½ 4 - 1½ 5 - 10,7 4 - 1½ 5 - 10,7 4 - 1½ 5 - 10,7 4 - 1½ 5 - 10,7 6 - 1½ 6	612 - 613 3.4 - 3.2 3.4 - 3.2 3.4 - 3.2 3.4 - 3.2 513 - 513 10.3 - 10.0 1.3 - 11.2 1 - 7 1	97g	- 654 - 654 - 654 - 1034 - 1034 - 1034 - 1034 - 1034 - 1038 - 1038 - 1009 -	7 - 8\frac{1}{2} - 3.7 \\ 3.7 - 3.7 \\ 5.7 - 3.7 \\ 5.7 - 3.7 \\ 5.7 - 3.7 \\ 5.7 - 3.7 \\ 5.7 - 3.7 \\ 5.7 - 3.7 \\ 5.7 - 3.7 \\ 7.7 -
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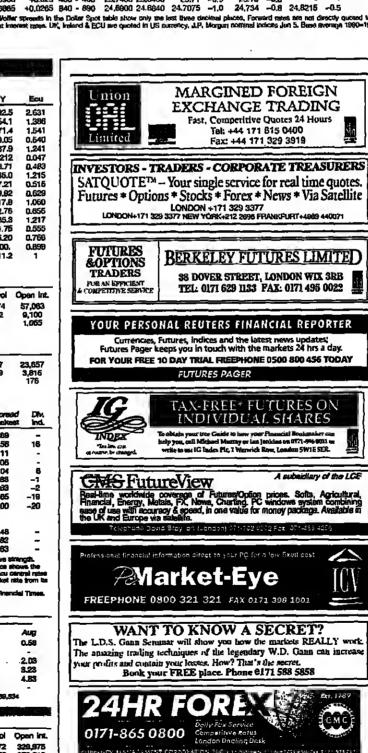
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Tops Prices for the London Steeré Service delivered by Extel Finencial, a member of the Financial Times Group.

Company classifications are based on those used for the FT-SE Actuaries Stars indices.

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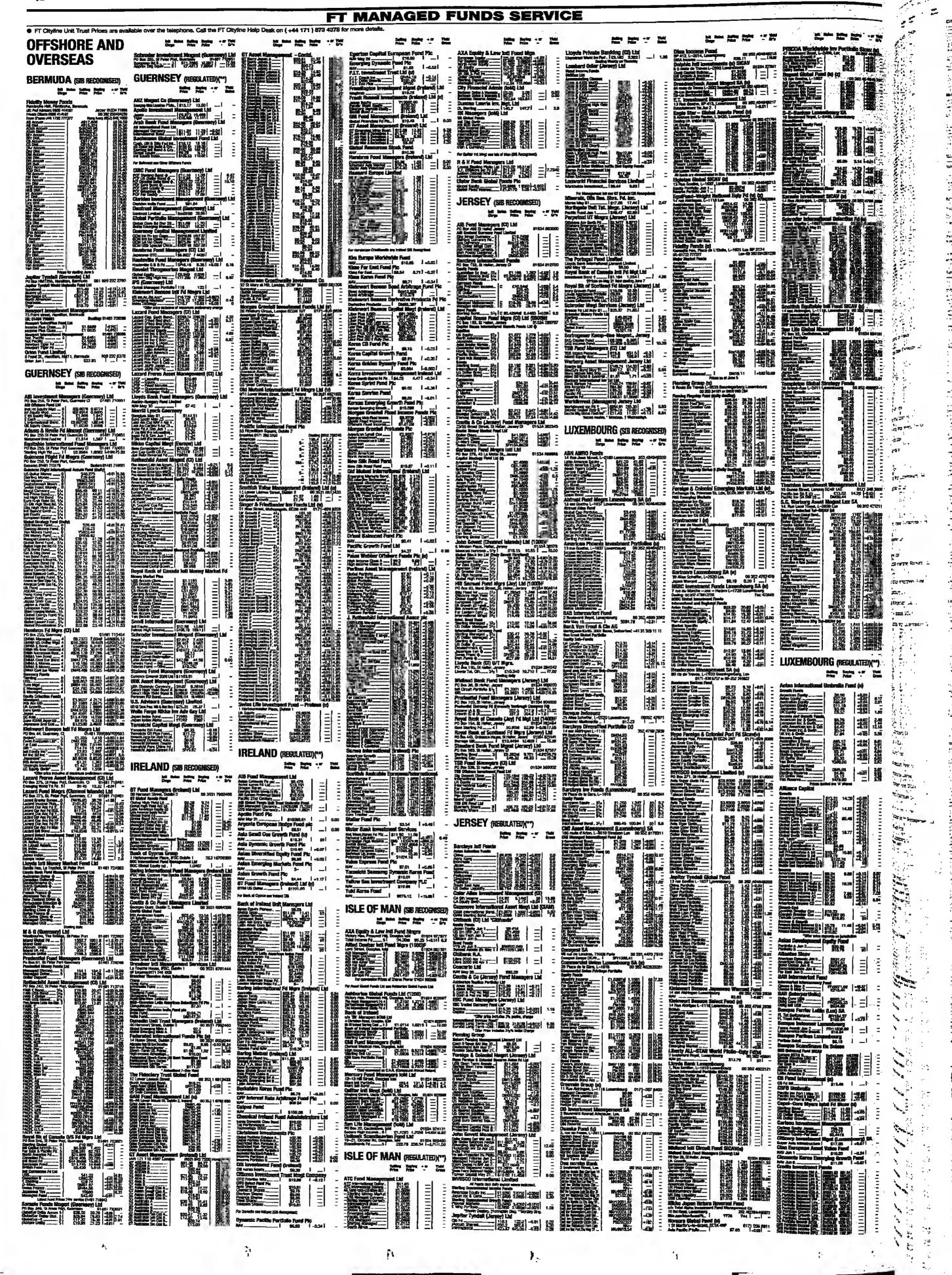
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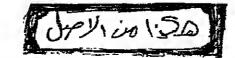
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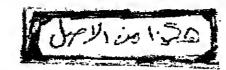
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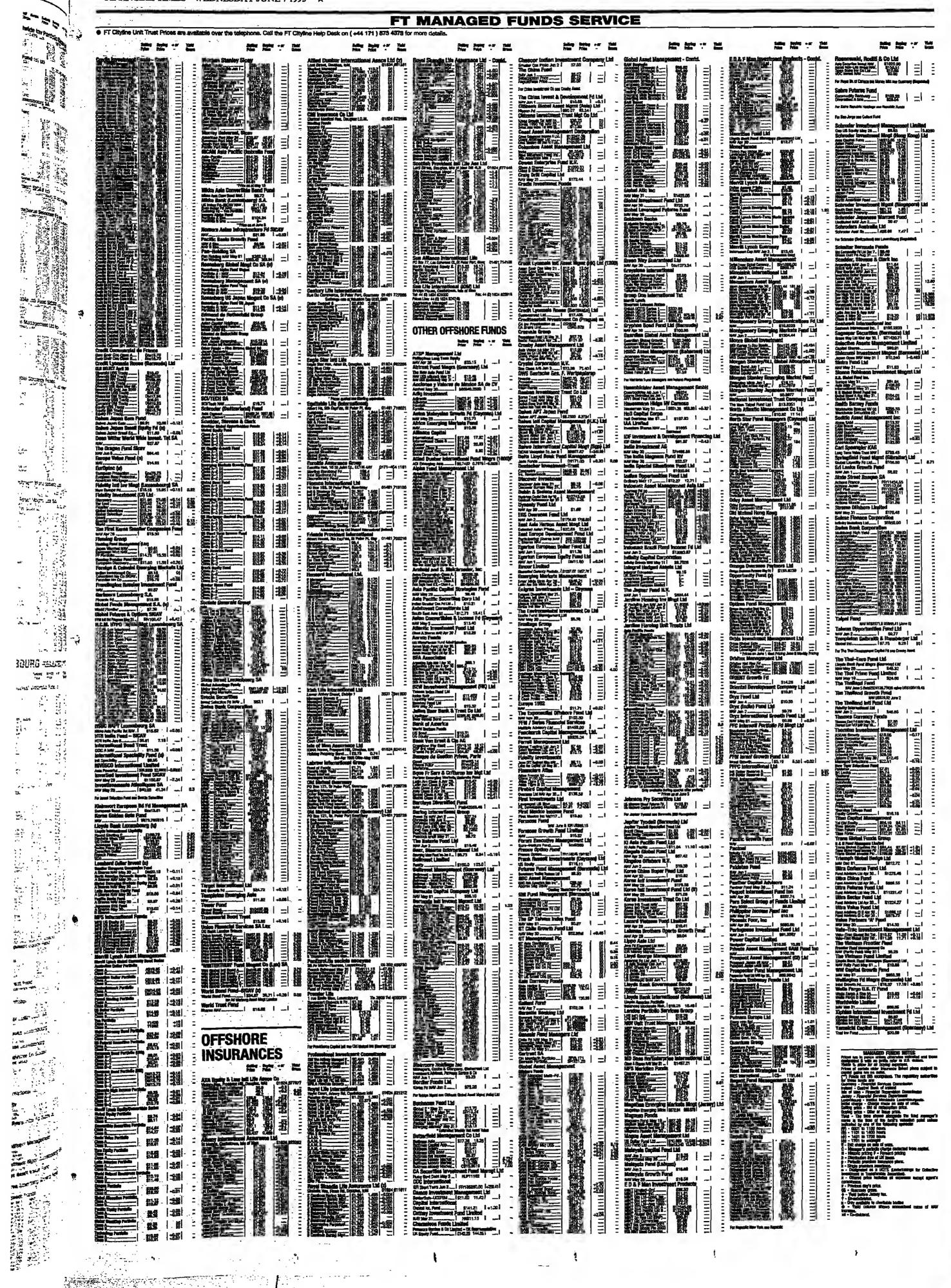
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LONDON STOCK EXCHANGE

MARKET REPORT

Late run sees Footsie move further ahead

By Steve Thompson, UK Stock

There was no stopping the "feel good" factor in the UK equity market yesterday as share prices edged further ahead. The market overcame its nervousness ahead of today's meeting between Mr Eddie George, governor of the Bank of England, and Mr Kenneth Clarke,

chancellor of the exchequer. The FT-SE 100 Index climbed 3.4 to 3,380.0, its fifth straight gain. The FT-SE Mid 250 Index, meanwhile, penetrated the 3,700 level for the first time since last September, ending a net 10.8 higher at 3,700.9. The driving force behind the Mid

250's performance came from the strong showing by many of the regional electricity stocks, after Seeboard's bumper dividend payout, plus a sprinkling of good gains

among the property shares. In the background, Wall Street gave European markets a fresh boost in mid-afternoon when the Dow Industrial Average responded to a fresh burst of buying interest on Wall Street, while gilts more than regained early small losses.

Marketmakers were at odds over the market's short term prospects after its recent splendid run. One of the senior marketmakers at a leading European bank said London would continue to outperform if Wall Street held firm. "London is underpinned by a strong earnings and dividend profile and the pros-pect of bids." he added.

Another took an opposite view, insisting that Wall Street's volatility was the indicator of an impend-ing sharp fall by US equities and

across Europe. At some of the big UK securities houses, the feeling was that marketmakers are becoming increasingly short of stock and would like to see a sharp retracement in the market, only to allow them to replenish trading books.

On the analytical side, one strategist maintained that there was still scope for another half-point reduc-

tion in gilt yields but that now would be an opportune moment to switch from gilts to equities. The FT-SE 100 began the session in good form, and almost eight

points higher in the wake of Wall Street's move to another record. However, a sluggish gilts market and small pockets of profit-taking took the edge off the market and drove the leading index down to a session's low of 3,368.8 in midmorning, although dealers said the

sell-off was mostly triggered by pressure in the futures market. With the Dow opening on a strong note, the UK equity market gathered itself to close comfortably in the black

also has 22.5 per cent, was hit by selling said to have come from BZW. The shares surren-

dered 9 to 476p in trade of 6.5m.

Ladbroke eased 3 to 181p after

a downward push from Nat-

West Securitles. NatWest

moved the stock from an add

to a hold recommendation and

cut its current-year profits

forecast by £10m to £160m. Analyst Mr Mark Finnie

said: "The principal reason is

the increasing impact of the weekly lottery and scratch

cards on its bookmaking busi-

ness." Ladbroke's betting and

gaming interests in the UK last

year contributed about 26 per

cent to group trading profits.

tricity distributor in south-

east England, moved ahead 11

to 395p as the market cheered

plans hy the company to allo-

savings to both customers and

cate £30m in unforeseen cost

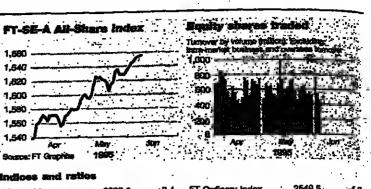
Shares in Seeboard, the elec-

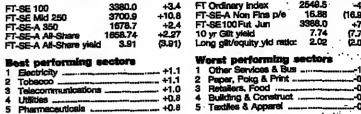
Meanwhile, leisure group

Seeboard kicked off the regional electricity sector's preliminary reporting season, pleasing the market with a better than expected 23 per cent dividend increase and the promise of more to come. The rest of the sector moved in tandem

Maiden results from Camelot, which runs the UK national lottery, were not quite as good as expected and that, plus disappointing prelim-inary figures, affected sentiment in shares of two Camelot participants, De La Rue and Racal Electronics.

Turnover picked up to reach 653.5m shares, with non-Footsie issues accounting for only 53.5 per cent of the total. Retail business on Monday was worth £1,06bm.





Brokers clash on Royals

A battle royal over Royal Insurance, between two leading securities houses, prompted the second heaviest day's turnover in the stock for more than three years.

On the sell side, Goldman Sachs argued that Royals had outperformed the market hy some 20 per cent, since the US house included it on its list of 20 European outperformers.

Analyst Mr Stephen Dias took the stock off the Euro-list as well as downgrading the sector. He commented; "The share price is now close to its embedded value. Although we are still supportive we feel that the best of the performance is over.

On the huy side, S.G. Warburg reiterated its enthusiasm. It pointed out that, while the sector bad risen sbarply, the group's net asset values boosted by soaring US bond prices - bad jumped 25 per cent since the start of the year. Warburg believes that company prospects have improved and the sector still remains

Warburg lost the session's skirmish over Royals and the stock fell 7 to 339p in turnover of 12m shares. However, the house was more successful with Commercial Union and Sun Alliance.

CU, additionally helped by Hoare Govett reiterating its support in its monthly sector

RBoS advances

Royal Bank of Scotland rebounded sharply yesterday as one leading securities house turned positive on the stock. Smith New Court put the

company back on its buy list, after noting that the sbares had underperformed the banking sector hy 17 per cent. since worries started to emerge over Direct Line, RBoS's insurance subsidiary, shout six months ago.

Analyst Mr Richard Coleman said: "Direct Line is definitely not ex-growth and we believe that as the cycle turns it will move ahead again. The shares have been derated enough.

Smith believes that a fair rating would put RBoS shares at around 460p. The share price, which had been restrained further by the presence of a big US seller in the market recently, rose 14% to 435p in

Vodafone jumps

Mobile phones group Vodafone was the FT-SE 100's top performing constituent and closed within a penny of its 1995 high following top of the range results and a mostly positive meeting with analysts.

The bulk of the day's share action took place late in the afternoon and was said to have been underplaned by US buying. The stock closed 10 up at 212½p in 9.8m turnover.

News that new subscriber costs were unlikely to fall this year led some analysts to trim forecasts. Profits estimates review, gained 10 at 640p, while for the current year centre

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SA, Warburg's best pick, rose around £500m, up 35 per cent. Initial profits from National Lottery group Camelot failed to give a lift to the four shareholders who each own 22.5 per cent of the company but never-

theless hit competitors. Although the group made £10.8m in its first 20 weeks and is expected to make around £50m in the current year, the figures came somewhat below

enthusiastic forecasts. Printing group De La Rue, which consolidated £2m from Camelot into its full-year figures, slid 14 to 913p on disappointing results and concerns

over prospects. "The shares are at a 25 per cent premium to the market and could well be dead money in the short term," said one. Racal Electronics, another big sharebolder, retreated 8 to 250p as the market latched on to the group's problems in its data products division, And

Cadbury Schweppes, which

	Jun 6	Jun 5	Jun 2	Jun 1	May 31	Yr ago	"High	'Low
Ordinary Stare	2549.5	2553.7	2529.1	2522.8	2507.7	2382.1	2553,7	2238,3
Ond, div. yield	4.21	4.21	4.25	4.26	4.26	4.22	4.73	4.20
P/E ratto net	15,89	15.91	15,77	15,73	15.88	19.04	21,33	15.73
P/E ratio nil	15.66	15.67	15.53	15.49	15.64	19.68	22.21	15.49
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	Jun 6	Ju	1 5	Jun 2	Jun	1 N	Mary 31	Yr ago
SEAQ bergains	25,399	9 23	458	23,456	24,	383	22,031	21,269
Equity turnover (Em)†		- 10	63.6	1361.5	158	6.6	1198,3	936,0
Equity bargainst		. 34	498	34,321	34,	115	32,289	24,983
Shares traded (mi)†		- 4	50.0	541.3	77	5.7	536,2	506,2
*Excluding Intra-market by	bns ceening	очетных	tunove	r.				

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Rises and talls' Total Rises Total Falls 1995 Highs and lows LIFFE Equity options Total Highs Total Lows 278 28 June 8 'Data based on Equity shares listed on the London Share Service.

Analysts said the allocation from Seeboard may have even exceeded that being considered

hy the industry regulator. Thames Water was among the 10 worst performers in the Footsie after the group failed to announce any extra benefits for shareholders or customers with its final results. The shares gave up 8 to 500p amid trade of 3.2m.

British Gas moved forward as Smith New Court began to talk in more positive terms about the company for the first time in 18 months.

Smith turned huyer, with the oil and gas team arguing that the company was in a position to achieve real dividend growth again. It predicts compound dividend growth of around 3 per cent and a 10 to 15 per cent upside in the share price. The stock ended a penny

higher at 310½p. Shell Transport slipped 51/2 to 772p, with Kleinwort Benson reiterating its sell stance. The house said Shell had "undeservedly" outperformed BP, and switching into the latter belped BP gain 1% at 446p in exceptionally heavy turnover of 15m shares.

Timber mercbant Meyer International stumbled badly. emerging as the day's worst performing FT-SE Mid 250 stock following a warning from the company that trading in the current year had not started well. Several over-optimistic profits estimates for the current year were said to have heen rapidly pulled back to more moderate levels. The sbares closed 12 lower at 307p in 3.lm turnover.

Motor distributor Lex Service advanced 11 to 364p for a two-day gain of more than 6 per cent. The group, due to produce interim results at the end of July, ts known to be teeing up an analysts' visit to its vehicle leasing side later this month. Dixon Motors

496p with some help from an announcement that the volume of trades carried out via Dealing 2000-2, the company's automated foreign exchange trad-ing system, had reached 20,000

a day. The company was also seeing analysts yesterday HSBC fell 9 to 844p, with Morgan Stanley said to have removed the stock from its buy

Fisons rose 8 to 181p as bid rumours returned to the stock. The talk was prompted by discussions centring on Zeneca which has become the focus of speculation over recent days

and ended 3 higher at 995p yes A squeeze in Associated British Foods saw the shares move 16 ahead to 670p. Unigate was in demand ahead of figures due

next week. A two-way pull in Forte brought turnover of 6.1m as the shares remained unchanged at 232p. Kleinwort Benson was said to have downgraded profits expectations at

		0	pen	Sec	t pric	. (hange	•	High		Lov	,	Est.	vol	Opes	i int
Jun		33	84.0	39	28.0		+7.0	5	3993.0)	3370.	0	126	84	623	200
Sep			07.5		11.5		+7.0		3416.0)	3398.	5	48	16 .	173	151
Dec		•			37.0		+7.0						0		. 30	2
s Fi	-SE N	ш 2	250 Th			JRE	9 (LIFF	9 6	10 pe	full.	index	potn				
	_	_	05.0	_	11.0		+11,0		3711.0	_	3705.		19	6	24	35
Sep			31.0		38.0		+12.0		736.0		3731.	0	18	5	28	21
	_	90	-	50		00 P	33 C	50 _P	34 C	00 _P	34 C	80 P	C.	100 °	St.	889 P
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MARKET REPOR Peter John, Joel Kibazo.

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Jeffrey Brown LONDON RECENT ISSUES: EQUITIES

price	Amt	Mkt.	199	95		Close		Net	Div.	Ges	P/E
P	UP	(5m²)			Stock	P	4/-	div.	COV.		net
	P.P.	133.2	733	889	Brit Aero Cap Uts	728	+1	-	-	-	-
-	F.P.	143.7	105	100	Durnyat An Div	105		M6-2	-	7.4	-
-	F.P.	29.7	105		Do, Monthly Div	105		M5.82	-	7.0	-
-	F.P.	25,2	103	26	Finsbury Worldwide	101		-	-	-	-
122	F.P.	24,9	127	122	Gradus Group	126		Lv4.88	2.1	4.8	12.5
80	F.P.	14.4	99	80	Gus Carter	91	-1	¥	-	-	20.0
3		223	313	312	Langdons Foods	312		Hv0.1	2.6	3.8	13.3
-	F.P.	13.0	650	650	Cityx India	650		-	-	-	•
-	F.P.	1.00	250		Do Warrants	250		-	•	-	-
125	F.P.	23.7	141	125	Precoat Int'l	141		R4.2	25	3.7	13,5
-	F.P.	84.T	107		Schroder Inc Gth	107	+1	-	-	-	•
-	F.P.	4.43	31	26	Do. Werrants	28	+1	-	-	-	-
125	F.P.	16.2	128	128	Silk Industries	135		Lv5.6	2,1	5.2	11.3

130 CO 100	MUNE	SII	(DE)	(A)	W. 3		
	Jun S	% chg on day	Jun 2	,kra 1	Tear hgd	Gross div yield %	82 wook High Low
Gold Mines Ludex (33) R Regional Indices	1881.87	-0.4	1889.29	1909.39	1919.72	2.18	2337.90 1697.91
África (16) Australesia (6)	2513.57 2137.02				2653.76 2621.45	5.09 1.83	3711.87 2426.19 2951.46 1788.20

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				Burn Burn Burn Cab
fear hgd	Gross div yield %	B2 w	Low	Carl Carl
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53.76	5.09	3711.87	2428.19	Cou
21.45	1.83		1788.20	Dec
502.18	0.81		1348.18	East
tors. Re	PERSONAL VIEWS	7000 00 S	11/12/01	Bec

Reuters Holdings rose 6 to +0.1 3376 6 3345.0 3340.8 3004.8 +0.3 3690.1 3674.5 3674.8 3577.6 +0.3 3697.7 3692.8 3693.2 3583.7 +0.1 1678.3 1682.5 1660.8 1521.3 +0.1 1700.5 1665.3 1681.3 1518.8 +0.2 1650.4 1638.3 1693.3 1486.8 15.26 70.24 1319.67 18.91 54.85 1416.61 17.58 56.23 1418.02 15.95 32.65 1339.25 14.82 39.71 1120.88 17.52 25.18 1107.83 4.09 3.53 9.67 3.96 4.92 2.96 3.27 3.47 3.91 2.00 1.67 1.94 1.98 1.75 2.41 1.82 1.69 1.95 FT-SE 100 FT-SE Mid 250 FT-SE Mid 250 o FT-SE-A 350 FT-SE-A 350 Higher Yield FT-SE-A 350 Lower Yield 1867.32 1896.16 1865.85 1867.01 1844.73 1844.40 1844.30 1843.98 +0.1 1656.47 1643.67 1642.33 1514.10 23.55 28.44 1484.18 21.25 29.67 1472.18 18.36 31.72 1345.28

FT-SE Actuaries All-	Snare	Day's				Year	Dev.	Net	P/E	Xd adl.	Total
	Jun 5	chge%	Jun 5	Jun 2	Jun 1		yield%	cover	ratio	ytd.	Return
10 MINERAL EXTRACTION(24)	2669.80	-0.2	2875.35	2681.30	2878.21	2578.48	3.64	2.07	16.58	61_64	1185.31
12 Extractive Industries(7)	3828.47	-0.3	3839.33	3816.35	3774.09	3783.06	3.70	2.07		91.94	1084.11
15 Off, Integrated(3)	2865.19	+0.2	2871.45	2883.56	2884.58	2524.39	3.76	2.18		91.83	1210.45
18 Oil Exploration & Prod(14)	2068.14	+0.2	2063.28	2058.59	2069.84	1839.39	2.39	0.67	78.42	31.57	1216.76
20 GEN INDUSTRIALS(278)	1975.10	-0.3	1980.26	1968.60	1872.76	1983.82	4.00	1.71	18.28	37.48	1036.69
21 Building & Construction(38)	1000.14	-0.5	1005.37	1003.86	1005.95	1205.12	3.98	1.86	16.90	20.64	806.85
22 Building Metis & Merchs(31)	1807.24	-0.4	1815.03	1800.73	1825.25	1923.68	4.10	1.95	15.60	37.17	878.53
23 Chemicels(22)	2431.07	-0.3	2437.46	2426.56	2438.19	2437.15	3.91	1.54	20.75	52.12	1111.98
24 Diversified Industrials(18)	1893.06	+0.1	1894.75	1876.91	1883.79	1987.30	5.10	1.59	15.45	50.84	1006.17
25 Electronic & Elect Equip(36)	2065.07			2065.83			3,54	1.93	18.29	15.42	1028,53
26 Engineering(72)	1991,85		1992.72	1982.26	1977.81	1840.92	3.15	1.84	21.59	27.18	1195.70
27 Engineening, Vehicles(13)	2346.10			2323.84			3.90	0.54		48.54	1174.48
28 Paper, Pokg & Printing(27)	2971.63			2995.38			3.26	2.26	16.98		1194,67
29 Textiles & Apparel(21)	1685,27	-0.5	1693.7 <u>7</u>	1683.68	1683.55	1718,38	4.19	1.60	16.65	38.87	989.18
30 CONSUMER GOODS(93)	3149,76	+0.4	3137.24	3105.42	3104.98	2607.30	4.15	1.61	16.80	69.66	1121.00
31 Brewerles(18)	2411.12	-0.2	2415.04	2401.75	2399.89	2173,4B	4.12	2.03	14.97	44.92	1120.06
32 Spirits, Wines & Ciders(10)	2773,98	-0.3	2783.71	2763.68	2756.11	2846,21	4.27	1.68	15.76	77.23	965.20
33 Food Producers(24)	2511.98	+0.3	2503.64	2480.71	2478.04	2187.75	4.05	1,97	15.69	56.99	1094,11
34 Household Goods(10)	2618,35	-0.3	2609.92	2624.92	2631,80	2465,12	3.52	0.98	36.37	54.80	968.95
36 Health Care(17)	1764,95			1754,62			2.88	2.35	18.50	24.QB	1045,59
37 Pharmaceuticals(12)	3919.25			3830.66			3.BG	1.62		69.31	1281.59
38 Tobacco(2)	4286,85	+1.1	4239.92	4196.30	4203.38	3677.96	5.29	1.90	12.43	131.29	1014,62
40 SERVICES(229)	2059,48		2060,41	2043.74	2043.98	1948,40	3.26	214	17.92	33.12	1038.39
41 Distributors(32)	2617,44	+0.3		2571.79			3.70	2.00		46.81	933.14
42 Leisure & Hotels(29)	2339,43	+0.2	2343.43	2331.84	2333.72	2094,97	3.34	1.71		37.23	1180.66
43 Media(43)	3044.75	+0.3	3035.70	3011.68	3014.62	2984,34	2.59	2.35		54,48	1080.82
44 Retailers, Food(16)	2052.55			2038.89			3.38	2.44		35.45	1262.17
45 Retailers, General(44)	1688,97			1671.39			3.38	2.19		27.84	935.10
48 Support Services(37)	1635,73			1635.18			2.69	2.53		19.97	1015,04
49 Transport(21)	2293,30			2283.75			3.85	1.86		29.32	B17.94
51 Other Services & Business(i)	1228,26			1251.59			3.70	1.24	27.18	12.40	1076,77
60 UTILITIES(37)	2412,79			2379.18			4.60	1.88	14,44	27.96	959.12
62 Electricity(17)	2287,54			2260.07			4.54	2.76		27.40	962.23
64 Gas Distribution(2)	2052,14			2026.79			5.84	0.65		65.76	997.04
66 Telecommunications(5)	2069.85			2053.15			4.06	1.47	20.68		910.71
68 Water(13)	1960.08		1956.42	1944.53	1952.14	1704,32	5.20	2.77	8.69	23.53	1006.18
89 NON-FRANCIALS(861)	1775,70	+0.1	1773.40	1781.83	1782.91	1633,97	3.91	1.89	16.88	32.18	1292.96
70 FINANCIALS(117)	2484.66			2448.03			4.27	2.32	12.59	64.12	1021.52
71 Benks, Reteli(9)	3351,14			3285.75			4.11	2.91	10.45	90.64	1041.66
72 Banks, Merchant(8)	3317,54			3323.49			3.49	1.90	18.86	56.32	1025,78
73 Insurance(26) 74 Life Assurance(6)	1384.85 2744.62			1368.37			5.13	1.84		43.40	992,64
74 Cite Assurance(0) 77 Other Financial(22)	2048.22			2706.85			4.95	1.36	18.52		1101.28
79 Property(46)	1490,38			2033.09			3.78	2.32		26.68	1122.28
				_			4.0B	1,24		<u>25.34</u>	880.39
80 INVESTMENT TRUSTS(133)	2831,93			2810.66			2.30	1.01		29.49	967,55
89 FT-SE-A ALL-SHARE(811)	1658.74			1643.87		1514.10	3.91	1.95	15.36	31.72	1345.28
T-SE-A Fledging	1013,85			1011.54		-	2.86	1.21		14.08	1028.60
T-SE-A Redging at Inv Trusts	1007.19		1008.83	1005.32	1005.25	-	3.11	1.25			1022.26
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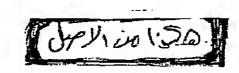
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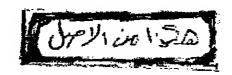
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FINANCIAL TIMES WEDNESDAY JUNE 7 1995 * NYSE COMPOSITE PRICES NASDAQ NATIONAL MARKET 4 pm close June 6 PV 58s Smoot Chr. 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Reads quals the code FT3185. Buy 0181 770 0770 lapse 24 nous, including weekends or for 0161 770 3002 if calling from ourside the UK, did +44 181 770 UK70 or fax +44 181 770 3002. Reports will be sent on the next working day, subject to analysish. AMEX COMPOSITE PRICES Sincix Div. E 100a High Low Closer Clang Adv Magn Adv Mag | P/ Sta | Stack | Obs. E 100s | High | Low Clean Clarg | Handle | 38 | 1608 | 0\frac{1}{4}2 | 2\frac{1}{4}3 \frac{1}{4}4 | 4\frac{1}{4} | 1608 | 0 | 1608 | 2\frac{1}{4}3 | 3\frac{1}{4}3 | 4\frac{1}{4}3 | 4 NOR 10 S1 7½ 7½ 7½ 1½ 1½ Pegnsus 8 0.18 5 2275 11½ 11½ 11½ 1½ 2½ Persisi 0.00 25 55 10½ 194 10½ PRIMOY A 0.50 23 61 45½ 45½ 44½ 4½ 4½ PMC 0.98 8 58 11½ 11½ 11½ 11½ Presidoa 0.10 0 310 ½ 26 55 1½ | Charleys | 20 | 77 | 12\frac{1}{4} | 11\frac{1}{2} | 17\frac{1}{6} | -\frac{3}{4} \\ \text{Octed Corm | 20 | 17 | 12\frac{1}{4} | 11\frac{1}{2} | 17\frac{1}{6} | -\frac{3}{4} \\ \text{Oddictor A} \quad 6 | 87 | 5\frac{1}{2} | 5 | 5 | -\frac{1}{2} \\ \text{Oddictor A} \quad 6 | 87 | 5\frac{1}{2} | 5 | 5 | -\frac{1}{2} \\ \text{Oddictor A} \quad 1 | 2 | 14\frac{1}{4} | 14\frac{1}{4} | 14\frac{1}{4} \\ \text{Oddictor A} \quad 1 | 120 | 5 | 52 | 32\frac{3}{4} | 32\frac{3}{4} | -\frac{1}{4} \\ \text{Othocks x} \quad 1.52 | 18 | 515 | 34\frac{1}{2} | 33\frac{7}{4} | 33\frac{7}{4} | -\frac{1}{4} \\ \text{Odd Keith B} \quad 1.52 | 75 | 167 | 34\frac{1}{2} | 34\frac{1}{4} | 34\frac{1}{4} \\ \text{Orbitalis N} \quad 1.22 | 75 | 167 | 34\frac{1}{2} | 34\frac{1}{4} | 34\frac{1}{4} \\ \text{Orbitalis A} \quad 1.22 | 75 | 167 | 34\frac{1}{2} | 34\frac{1}{4} | 34\frac{1}{4} \\ \text{Orbitalis A} \quad 1.22 | 75 | 167 | 34\frac{1}{2} | 34\frac{1}{4} | 34\frac{1}{4} \\ \text{Orbitalis A} \quad 1.22 | 75 | 167 | 34\frac{1}{2} | 34\frac{1}{4} | 34\frac{1}{4} \\ \text{Orbitalis A} \quad 1.22 | 25\frac{1}{4} | 34\frac{1}{4} | 34\frac{1}{4} \\ \text{Orbitalis A} \quad 1.23 | 34\frac{1}{4} | 34\frac{1}{4} | 34\frac{1}{4} | 34\frac{1}{4} \\ \text{Orbitalis A} \quad 1.23 | 34\frac{1}{4} | 34\frac UCtionSis 102 14 15 15\(\frac{1}{2}\)\(\frac{1}{4}\)\(\frac{1}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}\)\(\frac{1}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}{4}\)\(\frac{1}\ 444 444 98 52 32¹2 32¹4 32¹2 0.48 8 102 32¹6 31⁷2 32 0.20 7 58 3¹8 3²9 3²9 51 48 5 8 8 18 48 12⁵8 12¹4 12¹8 16 16 50 11¹8 11¹8 11¹8 Have your FT hand delivered in ::Tire:Netherlands. 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bonds fail to give impetus

Wall Street

US shares were mixed in early afternoon trading as neither the bond market nor any piece of important economic data helped traders to establish a clear direction, writes Liso Bransten in New York.

At 1 pm the Dow Jones Industrial Average was 6.22 higher at 4,482.77, while the more broadly based Standard & Poor's 500 gained 0.18 at 535.78. The American Stock Exchange composite eased 0.88 to 487.83 and the Nasdaq composite slipped 1.06 to 881.79. Volume on the New York SE came to 205m shares.

The bond market was volatile throughout the day as traders took profits each time prices pushed higher. By mid-day the henchmark 30-year bond was up nearly a quarter of a point to yield 6.501 per while the two-year note slid & to yield 5.550.

The Nasdaq composite posted a modest retreat on the heels of the strong gains it made on Monday after IBM announced that it was launching a hostile bid to purchase Nasdaq traded Lotus Development for \$3.3hn, or \$60 per

Lotus Development added 81/4 to the near \$29 it rose on Monthat another bidder might emerge to top IBM's offer. IBM recovered \$% of the \$2% it shed on Monday, bringing the price

Qualcomm jumped 14 per cent or \$4% to \$33% on news that PCS PrimCo would distribute the technology for the wireless communications company through its planned network. Shares in the company were up \$1! on Monday after NEC, of Japan. said it had licensed Qualcomm's wireless technology for use in building infrastructure for cellular telephone

Canada

Toronto rose in morning trade. although gains in most sectors were offset by weak precious metals issues. The TSE-300 Composite index was 5.81 higher at noon at 4,469.30 in heavy volume of 40.6m shares,

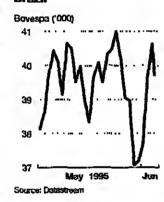
to recommend a C\$28.50 a share "white knight" takeover

Brazil gives up 2.3%

light midday trading on profittaking and speculative selling ahead of the mid-June index and options settlements. The Boyespa index was 925 lower at 29,703 at 1 pm in turnover of R\$155,8m (\$171.4m).

Analysts noted that the market had rallied by 9 per cent over the previous four sessions as optimism grew over key congressional votes, scheduled for late yesterday and today, on proposals to break the telecommunications and oil **BUENOS AIRES tumbled 4.1**

per cent in late morning trade on the heels of new govern ment austerity measures. The Merval index lost 18.36 at 428.18 as analysts commented that the market reflected the weak macroeconomic situation which was forcing the Argentine government to further



per cent in late morning busisbed 26.59 to 1,997.3.

S Africa awaits forex data

remained trapped by lack of investor interest and domestic kers commented that market participants seemed reluctant to take positions amid continued economic concerns and political uncertainty.

The overall index pnt on 16 at 5.543.9 and industrials edged np 9.5 to 6,969.3 hnt golds eased 5.6 to 1.381.3. Tomorrow's May gold and

could hnoy sentiment, they sdded, and deflect concern about a rise in interest rates in the short term. A row the ANC and Inkatha had also depressed sentiment and capped interest, especially from foreign investors, a

A firmer rand had under-

NATIONAL AND REGIONAL MARKETS

Pacific Ex. Japan (339) World Ex. US (1770)

Equities in Johannesburg mined price gains, especially remained trapped by lack of in golds, which had found little support from a mostly static dollar price for hullion. Among the actives, De Beers gained R1.25 at R96.75, Anglos

was 50 cents better at R204 and Gencor collected 15 cents Sasol firmed 50 cents to

R36.25 in turnover of R22m. A report from the Liquid Fuels Task Force on the company's tariff protection is expected to be released shortly.

Denko and Marubeni which involved the formation of a new supplier, Middelburg Vaal Reefs fell R2 to R227

and Kloof 50 cents to R39.75.

FT/S&P ACTUARIES WORLD INDICES

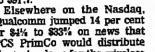
Samancor rose R1 to R54 after saying it had signed a joint venture agreement with Japanese companies Showa

121.18 153.90 144.47 107.01 242.97 103.13 140.51 2205.54 155.83 193.72 115.28 1

146,97 168,49 159,89 186,42 225,83 119,46 93,49 127,86 118,33 156,80 213,85,72 190,82 229,84 128,12 121,91 165,70 145,10 165,73 194,24

.....188.33 0.3 175.10 100.77 137.80 150.07

pht. The Francial Times Limited, Galdman, Sachs and Co. and Standard & Poor's, 1995. All rights reserved. priote were unavailable for this edition. Markets closed 5/6/96: Austria, Belgium, Derman, France, Germany.



John Labatt jumped C\$2% to C\$27% as the directors agreed bid from interhrew, the privately held Belgian beermaker, in a merger that will create the world's third largest brewing group. Labatt had been seeking alternatives to a hostile C\$24 a

share bid from Onex, the lever-

São Paulo fell 2.3 per cent in

tighten public finances.
MEXICO CITY declined 1.3

ness as investors took further profits after recent gains and braced themselves for a small increase in interest rates after the results of the weekly auction of Cetes, or T-bills, was announced. The IPC index

method of using the 'price keeping operation' to hold the needs fundamental changes of the financial system to help share prices," said Mr Neil

Banks, which had risen since

Dow mixed as Continent remains stuck in post-holiday mood

After a holiday on Monday, most of the major markets remained in a subdued mood.

PARIS weakened slightly as profits were taken in a number of issues after recent gains, while dividend payments in a

few major hlue chips also dragged the index lower. The CAC-40 index retreated 5.36 to 1,965.94 in turnover

LVMH lost FFr21 at FFr931 as it denied reports that it might either purchase a French newspaper group or issue a convertible bond. Banks and insurers went

against the trend as expectations for lower interest rates in the near term gained ground. while they were also supported by bonds: Crédit Lyonnais, close to finalising the sale of its MGM chain, climbed FFr11.90 to FFr299.90, while Bancaire put on FFr18.45 at FFr593 and Axa FFr8.20 at

Suez, up FFr2.80 at FFr263.90, denied speculation that It might merge with BNP and UAP, up FFr3.60 and 90 centimes respectively to FFr254.50 and FFr144.90.

FRANKFURT reflected dollar strength which brought the Dax index to a floor trading close of 2,146.40, up 10.14. The Ibis index settled at 2,153.76. In banks, Deutsche gained DM1.40 at DM71.50, Dresdner DM0.40 at DM40.40 and Commerzbank DM2.50 at DM339.50. Chemicals went in the oppo-

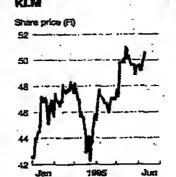
site direction. Bayer lost DM1.70 at DM346.30, BASF DM1 at DM306 and Hoechst 50 pfennings at DM311. Among vehicle manufactur-ers, Daimler-Benz made DM3.50 at DM701, BMW rose DM4 to

DM784.50 and Volkswagen was up 50 prennings at DM402. ZURICH edged ahead, the SMI index firming 4.4 to 2,809.7. as financials led the market forward on hopes for lower interest rates. Among insurers, Zurich

bearers rose SF131 to SF11,429 and Swiss Re registered were up SFr27 to SFr225, supported hy a buy recommendation from Credit Suisse. CS Holding bearers, trading ex-dividend, firmed SFr10 to SFr526. Nestlé, another ex-dividend

stock, picked up SFr6 to SFr1,175 in active trade. Holvis added SFr3 at SFr507 as the takeover commission postponed its decision on

BBA's agreed offer. Other second-liners were mixed, with Ascom shedding of hetween Fl 445m and



SFr15 to SFr1,400 after Friday's announcement that it was ending plans for a joint venture with Eriesson.

Motor-Columbus, the utility group, advanced SFr70 to SFr2,130 on renewed specula-tion that UBS might sell its 74 per cent stake.

AMSTERDAM enjoyed a strong rise in KLM ahead of the airline's 1994/95 results due out tomorrow. The AEX index made 2.13 to 435.23 as KLM rose F11.40 or 2.8 per cent to

Analysts expect KLM figures



received impetus from hopes that the dispute with pilots would be concluded soon. Profit-taking continued to

gnaw away at Royal Dutch, off Fl 2.60 at Fl 198.10, and following an analysts presentation MILAN edged higher in

another restrained session with only Fiat and the banking sector demonstrating signs of life. The Comit index rose 4.34 to 630.00, while the real-time Mibtel index finished 25 higher at 10.077 Fiat fell L72 to L6,223 in fur-

ther response to Friday's lower than expected first quarter operating margins. James Capel, which downgraded the stock, cited: the previous strong performance of the shares; technical analysis that suggested the neward share

price momentum had now run its course; a reduction in its profits forecast; and the fact

tive shares in general over the second half of the year. Imi rose 1.106 to 1.10,396 after. it said it would buy a 2 per cent stake at L10,000 a share in San Paolo, L118 ahead at

that the broker was cautious

about the outlook for automo

STOCKHOLM was lower after slides in Ericsson and Astra, and the Affarsvärlden index lost 4.90 to 1,604.90. Ericsson fell SKr9 to SKr541,

after a low of SKr534, on speculation, later confirmed, that a major order for personal communications system would go to a rival hidder.

A shares in Astra, the pharmaceuticals group, reached a record SKr223 before dropping back on profit-taking to close

SFr219.

A A STATE

Among the continent's emerg-ing markets PRAGUE [ell to a record low, as losses in SPT Telecom pushed the PX50 index down 3.2 or 0.8 per cent to 405.5. It was the eighth con-Dealers said that the index

could fall through the 400 support this week. Trading, boosted by block deals in several issues, was very heavy with total volume more than doubling to 1.5m shares, while turnover jumped to Kcsl.4bn.

SPT Telecom lost all of its KCs55 gain in Monday's session, dropping Ksc55 to Ksc2,400.WARSAW added to Monday's 5 per cent gain with another 1.4 per cent in the Wig index, up 113.3 to 8,178.3.

ISTANBUL saw a continua-tion of Monday's 4.2 per cent rally, with another rise of 2.8 per cent. The composite index rose 1,405.11 to 52,081.55. TEL AVIV was lifted 1.3 per

cent in high turnover as selective foreign demand sent prices up. The Mishtanim index rose 2.44 to 184.0

Written and edited by Michael

Nikkei drops 1.5% on pessimism over bank bail-outs

Tokyo

The Nikkei index fell 15 per cent as comments by Mr Masayoshi Takemura, the finance minister, reluting his previous remarks over the use of public funds to bail out banks discouraged investors, writes Emiko Terazono in Tokyo. The 225 average lost 236.33 at

15,660.99. A brief rise in the futures market prompted arbitrage buying, but the index lost ground on selling triggered by pessimism over the state of the country's financial system. and fluctuated between 15,607.59 and 15,923.36. Volume was 224m shares,

against Monday's 184m. The Topix index of all first section stocks fell 15.39 or 1.2 per cent to 1,264.24 and the Nikkei 300 shed 3.20 or 1.4 per cent to 235.18. Declines outpaced rises hy 748 to 245, with 172 issues unchanged But in London the ISE/Nikkel 50 index was 1.14 firmer at 1.044.35

Mr Takemura's comments that the government's involvement in the disposal of bad debts should not be taken to indicate the use of public funds followed a statement on Monday by Mr Kyosuke Shinozawa, the vice-finance minister, who cautioned that the issue was being studied "extremely deeply and prudently".

While investors were discouraged, some analysts said the Finance Ministry would not offer public funds directly to banks, hut would prohably use the funds to liquidate their land collateral while giving them tax breaks on the dis-

posal of such real estate.
"It is evident that the old market up has come to the end of the line, and the market Rogers, a strategist at UBS

Mr Takemura's initial remarks of the injection of public funds to solve the bad loan problem last week, declined on profittaking. The sector lost 1.5 per cent, with Industrial Bank of Japan falling Y60 to Y2,550 and Mitsubishi Bank Y70 to Y2,080.

Individual investors took profits on speculative issues_ Maruyama, the day's most active stock, slipped Y9 to Y655 and Tamura Electric Works Y50 to Y1,040. Daldo Steel Sheet, however, moved forward Y20 to Y960.

Steels were lower on foreign selling. Nippon Steel eased Y5 to Y304 and NKK Y1 to Y212. In Osaka, the OSE average declined 141.62 to 16,886.66 in volume of 8m shares. Hightechnology stocks and pharmaceuticals were sold. Rohm, a semiconductor device maker, receded Y80 to Y3,940.

Roundup

Profit-taking was much in evi-dence in regional markets yesterday, when Seoul was closed for the Memorial Day holiday. MANILA, however, ended at its second successive 1995 closing high, supported by overnight gains on Wall Street.

The composite index added 36.79 or 1.3 per cent at 2.877.33 off an intraday peak of 2,886.43, in volume of 1.6bn shares worth 1.95bn pesos. Brokers said some stocks

had now reached overbought levels but that foreign demand continued to sustain a rise. Gainers included PLDT, 1.3 per cent stronger at 1,890

pesos, and Petron, up 2.3 per cent at 22.25 pesos. KUALA LUMPUR ended lower after profit-taking reversed a firm opening as institutions, which had been accumulating blue chips, decided to book profits to huy

leading second and third line stocks. The composite index, which closed at new highs for the year in the previous two sessions, lost 4.52 at 1.080.52.

Financials led falls in blue chips, with Malayan Banking down 10 cents to M\$20.40. AMMB Holdings fell M\$1.50 to M\$32.00 and DCB Holdings by 30 cents to M\$7.50.

Associated Kaolin Industries surged M\$2.30 to M\$10.40, leading a charge in gaming issues on speculative buying. Repco jumped M\$1.50 to M\$18.00. SINGAPORE encountered profit-taking during a hesitant day's trade that left the Straits Times Industrial index 27.05 or

1.2 per cent lower at 2,190.98.

187.54 159.35 225.59 93.21 117.95 212.83 135.68

187.78 174.97 99.86 137.26 149.45 189.27 185.92 173.02

87.86 120.81 106.24 144.86 104.53 143.68 76.17 104.70 74.80 102.25 150.26 226.54 113.17 155.55 99.58 136.86 83.86 115.25 199.35 274.01 122.59 189.51 40.00 55.06 81.86 170.46 296.52 407.57 516.86 710.46 118.37 162.70 218.06 299.77 164.29 255.30 78.87 108.40 140.21 182.72 145.53 145.19 93.02 127.86 114.79 157.78

203.03 115.87 158.27 186.11 106.22 145.00 176.80 100.79 138.53 208.12 134.76 185.23 152.44 87.00 118.59 162.41 92.86 127.41 198.57 113.33 155.77 198.31 90.92 124.97 242.19 132.22 189.99 162.95 83.00 127.82 172.45 98.42 135.29 193.49 110.43 151.78

154.00 184.41 183.18 133.47 131.07 253.29 198.29 174.48 146.93 348.30 214.81 70.19 143.13 S19.55 905.67 233.88 76.92 207.40 382.13 322.90 138.18 245.67 188.09 102.98 201.12

199,74 189,52 253,40 163,60 174,30 213,10 170,97 259,91 174,67 185,08 207,65

0.4 2.31

Van der Horst rose 35 cents to \$\$5.90 hut brokers said there was no fresh news to explain the advance.

STIC. which announced a S\$500m deal to huild an airport in Burma, hardened 3 cents to S\$2.08 as analysts noted that the project would only lift the group's earnings in the longer

HONG KONG turned back after a shortlived morning surge as foreign profit-takers gained the upper hand, and the Hang Seng Index, 87 points ahead early in the day, finished 72.54 down at 9,497.83. Turnover amounted to

HK\$4.3bn, compared with Monday's HKS5.7bn. Blue chips were out of favour as investors switched their attention to recent laggards such as Wharf Holdings,

10 cents ahead at HK\$26.35,

higher at HK\$21. TAIPEI was mixed after the announcement of lower than

and Citic Pacific, 30 cents

expected inflation figures prompted some late buying. The weighted index reversed an early fall to finish 7.13 up at 5,678.31. Turnover was light at

T\$25.5bn. The country's consumer price inflation was 3.31 per cent in the year to May, while wholesale price inflation was 7.43 per cent. Brokers said the data was lower than expectations and had lifted sentiment.

The electronics sector gained ground, with Megamedia up TS1.70 or 4.5 per cent at TS39.40 and United Micro Electronics climbing TS2.50 to TS131. Food and financials were weak: the three commercial

mercial and Hwa Nan. relin-

pectively. SYDNEY finished higher although below the session's

T\$104, T\$104 and T\$110 res-

best. The All Ordinaries index put on 8.4 at 2,020.1, while the All Industrials advanced 22.4 to 3.057.4. Among the actives. News Corporation closed 25 cents

ahead at A\$7.83 after touching an intradsy high of A\$7.85 on reports that Its US unit For Broadcasting had increased its prime time advertising rates by 25 per cent. More than 8.3m News Corp shares worth A865m changed hands.

The gold shares index retreated 8.9 to 1,772.2, and among sector stocks Placer Pacific finished 9 cents down at A\$2.81 while Poseidon Gold banks, Chang Hwa, First Com-

dipped 3 cents to A\$2.49. shares. The BSE-30 index ended 31.81 higher at 3.399.36.

WORLD GOLD

as blue chip issues were sold following the market's recent strong gains.

The SET index fell below the 1,400 support level to close 11.04 down at 1,397.22 in moderate volume of 144.2m shares worth Bt9.7bn.

Investors sold stocks in the finance, banking and telecommunications sectors after their respective indices failed to break through resistance levels several times in recent days. . The printing sector was the

most active, rising 5 per cent

on speculation that profits will

be boosted by spending on publicity by political parties for the July 2 general election. BOMBAY turned higher towards the close as attention focused on market leaders and newly listed finance sector

Emilia.

SE SMICHEN D

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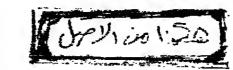
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FINANCIAL TIMES REVIEW

View from the top: Bob Frankenberg of Novell



Networking:

Important implications for business



Software at work CAD and project management: saving time and money



Directions

Multimedia: home consumer market leads the way

Information Technology

Wednesday June 7 1995

The real costs of buying and operating computer hardware for the office are rather like an iceberg - most of them are hidden, writes Paul Taylor

New moves to reduce the cost of ownership

he real cost of information technology has become an important issue for companies worldwide - not just the initial expenditure on the purchase of equipment but the management of on-going system costs as well.

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The drive to reduce costs has been initiated by purchasers concerned at discovering the extent of lifetime expenditure on systems but has been taken up, too, by manufacturers, suppliers and specialist vendors keen to distance themselves from a possible user backlash.

For this reason, equipment vendors such as Compaq Computer, IBM and others have built features into their systems designed to improve manageability and to cut maintenance costs. The industry's desktop management task force whose membership includes Microsoft, Intel, IBM and Novell, is working towards establishing the Desktop Management Interface (DMI). This is a technical specification for managing networked PCs, printers, and other devices.

Specialist international network management software vendors such as Cheyenne Software Express Systems, McAfee Associates and Saber Software have also found a lucrative niche market for products which improve network performance, anticipate problems and simplify manage-

Novell, the market leader, and other network operating systems vendors, are also incorporating simplified installation and administration features into their software. Novell claims that the common, distributed directory, integrated services, and powerful new administrative tools in its recently launched NetWare 4.1 deliver cost benefits averaging 30 per cent.

In related moves targeting the same overall problem, many companies have lar applications, the help-desk function, or the whole network in an effort to control costs and focus more attention on their core competencies.

This growing interest in ownership costs is reflected in a number of recent studies constrating that the hardware itself is the least important factor in overall costs.

Over the typical five-year life cycle of a desktop system, hardware accounts for perhaps 10 or 12 per cent of the total cost of ownership. The vast bulk is the labour cost involved in support, administration and, most importantly, end-user

Personal computing: five year costs of a PC, idening Whintows 3.1 ± \$41,000 or \$8,200 a year Labour 8896. Capital 1296

The cost of ownership

The Gartner Group calculated in 1987 that the five-year cost of ownership for a typical company of a Dos-based system was \$19,296. By last year, that cost had more than doubled to \$41,536, even though capital costs had fallen from \$5,403 to \$4,004, reflecting sharp declines in the

price of hardware and software. The labour-to-capital ratio which was 70:30 in 1987 had risen to 90:10 hy 1994. This compares with ratios of around 60:40 for minicomputers and as low as 20:80 for

Commenting on the figures, Gartner analysts noted: "The strategic value of PC technology is increasing rapidly, but the cost of this technology may be prohibitive if aggressive action is not taken to reduce the (labour) overhead." Gartner suggested that total costs could be reduced by half over time but concluded: "Clearly Dos continues to be a labour-intensive and costly desktop environment ... we recommend that users run, not walk, away from Dosbased technology."

Jindows 3x makes Dos easier to use and therefore leads to reduced end-user costs - 57 per cent of total five-year costs compared with 61 per cent for non-Windows Dos systems - but Windows still suffers because of its Dos underpinnings which lead to higher technical support

Over a five-year period, a Windows 3.1 system with eight applications costs virtually the same as a Dos system with four applications, but the make-up of these cost has changed dramatically and the Windows system offers much more functionality and useability than Dos.

Microsoft claims Windows 95, due for release later this summer, has been specifically designed to reduce total cost of ownership through increased ease of use, functionality and support, in addition to reduced administrative costs.

Windows 95 reduces these costs by using 'plug-and-play' technology and a software tool called the registry, a single point of reference for hardware, software and user profiles as well as for system policies. This enables PC and network managers to manage Windows 95-based PCs remotely by enabling or disabling centrally more than 50 different user privileges and features. Gartner estimates that Windows 95 endusers' costs will be 18 per cent lower and technical support costs will be 12 per cent

improved stability of a network-aware system coupled with advanced diagnostic and

trouble-shooting tools. One of the key strengths of the new generation of operating systems such as Windows NT, Windows 95 and IBM's OS/2 Warp is their support for computer net-working. There is a continued strong trend among companies on both sides of the Atlantic towards client/server computing - distributed systems in which an application is split into parts that are executed in different places.

However, studies suggest that few of those involved in this movement away from traditional mainframe-based systems fully calculate the costs involved. One obstacle to establishing the true costs of client/server computing is the complexity of systems and the wide range of equipment involved. Once again, however, client/server systems turn out to be very

In the case of a large organisation with 5,000 client workstations in 250 remote sites, each with a local PC-based server connected to a battery of euterprise serv-ers, Gartner estimates that labour costs account for 71 per cent of the total cost of ownership of \$49,400 per user over five

Technology costs, including all client and server hardware, software, upgrade, maintenance and communications elemeuts represent only 21 per cent of the total, and most of that is spent on the desktop rather than the server, according to a Gartner report published earlier this

Too often, traditional client/server costevaluations focus on the enterprise server costs," says the report. "In our analysis, the hardware and software costs for three cent of the total."

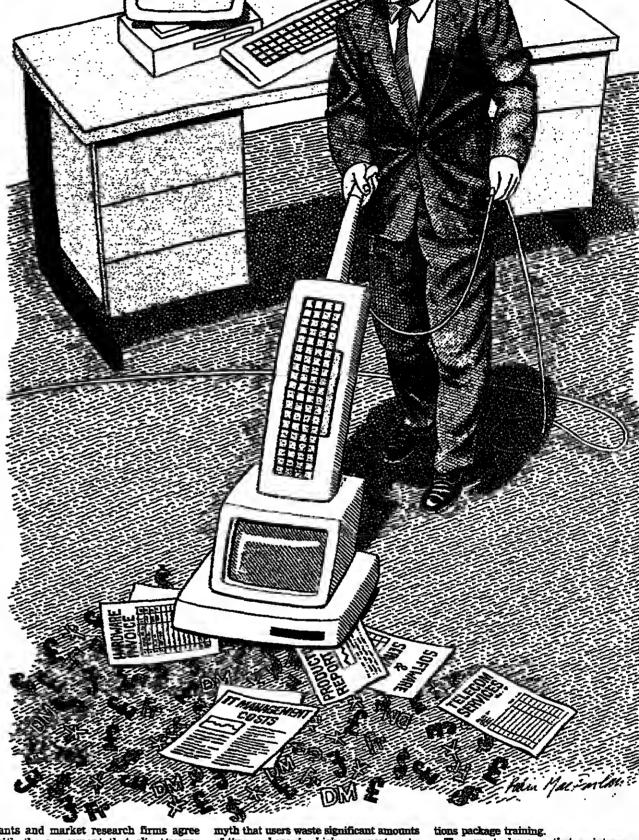
infortunately, corporate resources and investments have often been focused on seeking improvement by addressing the wrong cost elements technology rather than labour. Gartner suggests that reducing complexity, investing in training and in systems management and end-user support tools - including using technology to automate software distribution and server file back-up - can all help reduce costs.
Nevertheless, client/server computing

needs to be approached as a long-term investment, not a short-term fix to reduce high mainframe costs or a blind move to a new technology.

"Cost should not be the main issue." in deciding whether to move from mainframe-based to client/server computing says Mr Andrew Dailey, an analyst with Cartner in Europe. "The real debate is what should the IT infrastructure look like and what is the best way to address differ-

Indeed, the real benefits of client/server computing lie not in cost-saving, but in the opportunity it provides for rapid application development, improved flexibility and perhaps most crucially, faster time to

In any event not all independent consul-



tants and market research firms agree with the assessment that client/server computing is an expensive option.

There are also some studies which suggest that the costs of client/server computing may have been exaggerated. A recent report published by the UK-based OTR research group, on the evidence of a survey of over 2,000 European companies, reached a number of surprising conclusions: the OTR study suggests that it is a

myth that users waste significant amounts of time and require higher support costs. On average, the total amount of time needed to support networked PCs in a client/server environment is less than 15

minutes a day. However, OTR concedes that some installations are inefficiently operated and suggested three steps to reduce wasted time – removing disks from desktop PCs, restricting end-user functions and applica

The report also says that maintenance costs, including hardware maintenance, software support maintenance and network maintenance, are not higher. Companies that had moved from mainframes entirely had reduced maintenance budgets considerably because there was no further need for large maintenance contracts.

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■ Interview - Bob Frankenberg of Novell talks to Louise Kehoe

A pot-shot at the 'Microsofties'

Like many others in the software industry, Novell, the leading supplier of local area network software, is eager to participate in the emerging market for on-line electronic commerce

rom Boh Frankenberg's perspective, computers are merely nodes on an information network. As chairman and chief executive of local area network (Lan) software, he views the challenges of the information technology industry in terms of giving users access to information "anywhere, anytime".

A 25-year veteran of Hewlett-Packard, Frankenberg joined Novell last year and immediately found himself in the hot seat. The company was embroiled in a war of words with Microsoft over anti-trust issues and was in danger of loosing its focus on networking with the acquisition of Word-Perfect. a struggling PC applications developer.

Frankenberg moved quickly to calm - but not extinguish - the battles with Microsoft, reorganise Novell, and redefine the company's mission as the provider of software to enable "pervasive computing", or the ability to deliver information to computer users wherever and whenever they might need

One of the most important trends in the IT industry, says Frankenberg, is the merger of local and wide area networking - "I find this very exciting. Very soon, from a user's perspective and from a systemmanager's perspective, the wide area network and the local area network will become

one and the same thing."

"The user will be able to connect to any computer or network anywhere in the world at speeds and with the features that are today associated only with local area networks," be

The Internet provides only part of the solution, says Frankenberg - "the internet is wonderful... but there are some things the Internet does not do well. The lack of security is one issue, guaranteed performance is another."

SI COMPUTER NETWORKING

OUTSOURCING

Writers in this issue

See pages 2-9; for more details of topics included in

the networking section, see panel, right, with report

Free entrance to 'Networks 95' - special offer for

readers of this FT Review: see details on page 7.

on the revolution in computer networking.

IT services: users take a tactical view,

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The growth of the Internet, with some 30m or more people now linked to the global "network of networks", has exacerbated these shortcomings, says Frankenberg. For example, while the Internet provides very low cost, global electronic mail service, data traffic congestion can sometimes cause delays and users cannot be sure how long it will take for a message to arrive at its destination. The Internet also lacks directory services - "surfing the World Wide Web is like entering a library with the lights turned out. It is very difficult to find what you are looking for," he observes. Unless you know somebody's electronic mail address, it is almost impossible to send

security has become a more critical issue as businesses have taken to using the Internet. Security measures such as firewalls and authentification are making the Internet "more secure, but not secured," says Frankenberg. "I think that in electronic commerce, certainly where large sums of money are involved or where there is the risk of replication of account numbers that could be abused. businesses are going to

demand a secured system."
Ever the salesman, Frankenberg points out that the latest version of Novell's NetWare network operating system provides directory services that can be used not only to find people or documents on a network, but also to forhid access to unauthorised users.

Novell, in partnership with AT&T, the US telecommunications company, is offering a solution to the Internet's shortcomings by providing secure encrypted links between remote local area networks. The AT&T NetWare Connect Service will be expanded, Frankenberg says, through agreements with regional telephone

ON OTHER PAGES OF THIS IT SURVEY

SOFTWARE AT WORK

applications, pages 15-17.

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For details of the next issue of the Review in July, see page 18. Editorial background information for

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IT industry news and market trends; business

E MULTIMEDIA DEVELOPMENTS

companies in the US and PTTs in other countries so that "I can call you and your Lan becomes connected to mine. We still have full security and it runs at Lan speeds."

Novell is not trying to compete with the Internet, he insists: "We think of this as very complementary. It isn't a choice between our connect services and the Internet – you get both."

Like many others in the software industry, Novell is eager to participate in the emerging market for on-line electronic commerce. As part of Microsoft's recently cancelled plan to acquire intuit, publisher of the popular Quicken personal finance program, Novell was to have acquired Microsoft's cast-off product called Money.

However, Frankenberg made no secret of the fact that he regarded Money as a second-best product and would prefer to continue a prior licensing agreement with Intuit for Quicken. Microsoft's decision to call off its merger with Intuit will make this possible.

But the personal finance program is only one of the elements required to succeed in electronic commerce, he says—"the other thing that is needed is secure transactions over the network, We have tha capability to deliver that and Microsoft doesn't," he claims.

What is more, the further Microsoft is perceived as a threat by banks, financial institutions and publishers, the better it is for Novell, he claims, "We are working with lots of partners who are afraid of what Microsoft might do next. They are delighted to work with us because we want to see them be successful at what they do."

frankenberg's predecessor at Novell, Ray Noorda, was an outspoken critic of Microsoft's business practices and the company actively co-operated with US government anti-trust investigators as well as filing



an anti-trust complaint against Microsoft in Europe.

Frankenberg takes a different approach. He has defused some of the heated rhetoric and even reached an agreement with Microsoft to collaborate in offering snpport services to customers that use both Microsoft and Novell products.

Nonetheless, he does not miss an opportunity to take a pot shot at the "Microsofties". Windows 95, the long anticipated new version of Microsoft Windows, he says, "has some very nice features. It is nice to see the world's most popular desktop operating system catching up..."

catching up..."

"I think it is going to take a little more time than Microsoft hopes for there to be a large scale movement (to the new operating system)," he suggests, "especially in parts of the world where a 486 PC with eight megabytes of memory is

a pretty expensive beast." Although Novell is working

Although Novell is working hard to bring out a new version of its PerfectOffice applications suit for Windows 95, the company will continue to develop 16-bit applications for parts of the world and companies that are going to take more time to make the switch. Neither is Frankenberg.

more time to make the switch.

Neither is Frankenberg daunted by the so-called "client/server backlash" as computer users tally the high costs of managing computer networks.

"It is harder to manage client-server networks than central host computer systems. We should not kid ourselves," he says. About 70 per cent of the cost of a local area network is in system management and maintenance, according to Novell's calculations, "That creates a tremendous opportunity to reduce costs... and new opportunities for Novell."

Key pointers in reducing the cost of ownership

Continued from page one:

Similarly, training costs are not higher because most training is one-off, standard look and feel interfaces, such as Windows, bave eliminated many problems; and trained PC users are productively using more applications than in the past.

Neither, claims OTR, are network costs a significantly increased item. Although poor client/server design can lead to unnecessarily high traffic and costs, OTR argues that these can be avoided and that expensive downtime can be minimised by using the sophisticated network management software which is now available.

The key message for those businesses considering investing in new IT systems is that it is not enough to look at the initial capital costs – the full costs of the system over its

expected lifetime, particularly labour costs, need to be examined. Similarly, while no two sets of circumstances will produce identical answers, estimating real costs should have an important bearing on choice of operating systems. However, the decision to move from mainframe based systems to chent/server systems should be motivated by competitive factors other than cost.

Meanwhile, IT departments, faced with the growing complexity of networks and ever more-demanding end-users, should be encouraged to investigate the new software tools which can belp minimise running costs.

☐ 'A Guide for Estimating Client/Server Costs': Gartner Group, tel +44 (203) 961 0096.
☐ 'Does Client/Server Computing mean Higher Costs?': OTR. tel +44 0171 402 3574.

Revolution in

■ Looking alsead - Paul Taylor highlights advances in internetworking

computer networking

By the end of the decade, more than a billion people will be able to connect to computer networks

omputer networking is ushering in changes as profound as those which swept through business organisations with the arrival of the desktop personal computer at the start of the 1930s.

Over the past decade the computer industry has been transformed as stand-alone personal computers have been hooked together to form Local Area Networks (Lans) and then Wide Area Networks (Wans) to share applications, data and peripherals.

According to Dataquest, the market research firm, 70 per cent of business PCs in the US and almost 60 per cent in Europe are already connected to Lans - "networks provide the infrastructure for powerful information systems," says Novell, the network operating system market leader. "They make people more effective in bow they use information whether in their homes, at work or wherever they might be."

Today, distributed computer systems and client/server networks are rapidly replacing mainframe systems for many applications, including those 'mission critical' processes on which organisations depend.

Highlighting this trend. 34 per cent of a Fortune 1,000' sample study, undertaken recently by Forrester Research of the US, said they planned to implement one or more client/server core applications over the next three years.

According to Price Waterhouse, clients list four basic reasons for implementing client/server technology, even though the firm's latest Technology Forecast says that, "like any new set of technologies, client/server is risky."

The reasons for implementing the technology

The reasons for implementing the technology are; the widespread use of simple to use graphical user interfaces such as Microsoft Windows on client/server networks, the expectation of lower IT costs over the longer term, perceived gains in terms of flexibility and speed of development, and the opportunity to move to powerful new packaged applications.

Since the late, 1990s Lans themselves have heen interconnected using devices such as routers, hubs and bridges to form enterprise-wide computing systems changing the way organisations do business and further bluring the distinctions between data processing and telecomputing states.

New challenges for IT departments

"There are a number of forces driving the internetwork evolution: business demands, new handwith-intensive applications and technology advances," says Paul Severino, chairman of Bay Networks.

Companies and individuals such as 'teleworkers' are using a variety of methods to connect together remote sites. These range from dial-up modems and ordinary analogue telephone lines to integrated services digital network (ISDN) lines and dedicated high speed digital links.

"The Lan internetworking market has evolved dramatically in the last five years and has now become the centre of attraction of the entire networking industry," Olivier Choron of Dataquest says in a report on internetworking.

The explosive growth of Lans, client/server

The explosive growth of Lans, chent/server systems and internetworking has presented new challenges for IT departments used to dealing with centralised mainframe-based systems and applications.

On the one hand, IT managers are faced with the unrelenting proliferation of desktop systems, increasing demands by end-users to network these systems and the growing complexity of networks and network applications. On the other hand they are charged with maintaining or cutting corporate computer costs

Networking topics on the following pages include:

Advances in high speed networks; fibre optics; ATM technology

Local and wide area networks; virtual private networks

Systems intergation, network management, case studies

Mobile communications; electronic data interchange

while ensuring that their systems contribute to the organisation's overall competitive position. "The management of networks is the major issue affecting networks," says Gerhard Sundt, an analyst with Gartner Group in Europe. Network managers are turning to specialist software packages increasingly to help them monitor the network, improve its perfermance and

predict problems.

Aside from managing the network itself and the applications which run on it, Mr Sundit also identifies security as a key issue, particularly with the growth of connections to the Internet the global system of computer networks.

"Distributed security is an oxymoron," he says, adding that about 80 per cent of network security violations are connected with the inter-

The drive towards internetworking has also focused attention on the integration of existing networks and systems, and on the market for internetworking devices. In Europe alone, an estimated 44bn will be spent on internetworking products this year from companies such as Cisco, the worldwide internetworking product market leader, 3Com, and Bay Networks formed in October when SynOptics and Wellfleet Communications merged.

At the PC Lan level, Compaq Computer, IBM, Digital and other hardware vendors have developed high-powered machines for the \$11bn-a-year PC-based server market. Meanwhile, Novell's NetWare has become the undisputed market leader in networking software with around 72 per cent of the global network operating sustem market according to IDC.

system market according to IDC.

However, Novell faces competition from rivals including Microsoft which with its Windows NT server, IBM Lan Server and Banyan Vines each of which have around seven per cent of the

Electronic commerce is reshaping business

Until recently, computer networking was generally viewed as a narrowly focused, technical subject for computer specialists. Now, however, it has become synonymous with a raft of profound changes which are expected to re-shape husiness in the late 1990s.

Among the expected changes are the growth of electronic commerce such as electronic data exchange, and multimedia services such as interactive television and home shopping, multimedia kiosks and cable-based video-on-demand. In other areas, such as desktop video-conferencing, computer networks could also begin to have a profound effect on communications and the need for travel.

These changes imply more flexible and higher capacity networks than those available at present. The chief technical change is expected to be the emergence of an enterprise-wide, high speed network capable of carrying all an organisation's electronic traffic.

Faster PCs and network servers and larger files already mean that many networks are crowded and outgrowing the standard four, 10 or 16 megabits per second transmission speed of standard Ethernet and Token Ring Lans. A recent Dataquest survey revealed that almost a quarter of companies thought the speed of their current Lan was inadequate.

With many Lan-based applications already pushing the limits, there is increasing interest in high-speed networking technologies capable of delivering up to 100Mbps such as Fast Ethernet and Asynchronous Transfer Mode (ATM) which will be capable of supporting data, voice, graphics and video.

grapmes and video.

Some indication of the scale of the networking revolution underway is given by the prediction from Novell that by the end of the decade more than a hillion people will be able to connect to computer networks as they expand to include telephones, televisions and a growing range of intelligent' devices.

Pages 2-3

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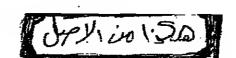
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The drive towards networked office

local area network

Percentage of personal computers connected to a



Much of the growing demand for networking in the commercial world is driven by the needs of the international financial community. Distributed computer systems and client-server networks are also replacing maintrame systems for many applications, including mission critical processes on which businesses depend

Metwork harware - Report by Louise Kehoe in California

The 'server' market is highly segmented

makers claim a significant role in the sector

he computer industry is notorious for its technical jargon, but when it comes to describing the current generation of computers that are linked to networks, the industry's vocabulary falls

In the industry vernacular, there are simply two types of computers for networks: "clients" and "servers". The clients are single-user machines, typically desktop computers. Servers, however, can be anything from a PC to a mainframe - just so long as they provide services on a network. The ambiguity of the termi-nology allows almost every computer manufacturer to claim a significant role in the server market. In reality, however, the market is highly seg-

The fastest-growing segment of the market is Internet servers: computers which provide

access to the Internet for local area networks as well as to create corporate World Wide Weh

Sun Microsystems is the leader in this field with an estimated 56 per cent of all servers on the Internet, according to a 1994 survey conducted by the Internet Society.

The latest versions of Sun's Netra Internet servers, introduced in May, comes pre-configured with WWW server software, connectivity for PC networks, security enhancements and system administration software tools. "The Netra Internet server

"appeals to a broad customer base because it is the only Web server that doesn't require Unix expertise to install and manage," says Carl Stolle, Sun's director of server product marketing. Netra prices range from

to \$16,000 for a departmental server. Silicon Graphics is another

\$6,000 for a workgroup server

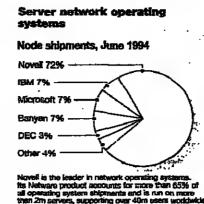
leading provider of dedicated WWW servers. Its Wehforce line of servers can handle

tions per minute, the company claims, and come pre-loaded with Netscape's WWW server software.

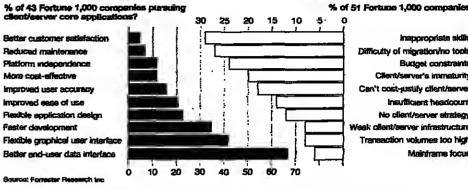
Hewlett-Packard has one of the widest ranges of server products, ranging from personal computer-based workgroup servers to "mainframe alternative" servers that can be used to support the operation of a company-wide net-

nother large category of servers is the local area network (Lan) application PC server. In this segment of the market, which is growing at about 45 per cent a year. Compaq Computer has the leading market share with its ProLiant line of servers. The latest ProLiant model, intro-duced in May, is built on up to four Intel Pentium microprocessors and up to one gigahyte of memory and delivered with selection of software pre-installed, according to custom-

ers' choices. Aimed at workgroup or departmental local area net-



What are the benefits of moving to client/server core appli



works, this top-of-the-range PC server scale are mainframe server provides the performance of a mid-range minicomputer at about half of the price, At the other end of the

computers, which are being "born again" in the role of enterprise servers, according to IBM. Mainframe computers are becoming more "open" with

software that adheres to industry standards, and will support standard communications proclient-server arena, company executives say.

What hinders your move to

t/server core applications?

Inappropriate skills

Budget constraints

Client/server's immeturity

No client/server strategy

Difficulty of migration/no tools

Can't cost-justily client/server

Week client/server infrastructure

Transaction volumes too high

Interconnection hardware - a look at the latest options - report by Joia Shillingford

Higher speed networks without huge expense

Companies want faster networks and better access to even the smallest branches. But can this be achieved without big financial outlay?

here are many ways of speeding up a network. But in the short term. 'Switched Ethernet' provides a pragmatic alternative to a number of other technologies. It is more flexible than routers (used to link two local area networks (Lans), or to split a Lan into two or more segments and ease congestion); and it is

more widely available than ATM (Asynchronous Transfer Mode).

"People are huying Switched Ethernet because it addresses capacity problems in large Ethernet networks without them having to tear everything out," says Mr Stephen Campbell, sales and marketing manager of the Glasgow-based Lan Support Company.

Many plan to implement ATM - billed as the high-speed networking technology of the future. But they are waiting for prices to fall and standards to be finalised, according to Michael Long, a sentor manager at the computer services company, Hoskyns. In the meantime, Ethernet

remains the most popular net-

working standard. A traditional Ethernet network is one big loop, so traffic destined for one terminal, gets broadcast to all PCs at a background level. This is rather wasteful in terms of network resources. It means that all PCs share a handwidth of 10 megahits a second (Mbit/s) or less.

Ethernet network, a device called a switch sits at the centre of a number of lines - typi-cally 12 or 15. Groups of PCs are connected to the end of these lines and data only travels down the sender's and recipient's lines - it does not get hroadcast to everyone. Fewer PCs share each 10 megahit line, which means faster throughput and less conges-

By contrast, in a Switched

tion. In addition, Switched Ethernet speeds up the husiest part of the network, such as the link with the network server (a powerful computer which stores files). The line hetween the switch and the server (or servers) can operate at 20 Mbit/s.

Moreover, Switched Ethernet supports two-way data flow so that a host system can send and receive at the same time, whereas standard Ethernet only supports traffic moving in one direction at once.

Such advantages helped to persuade Edinhurgh-hased investment management specialists Ivory & Sime to opt for Switched Ethernet, It made a direct comparison between investing in Switched Ethernet

or using a router to turn one large Ethernet network into two linked segments. In the end, it decided against routers because in very large networks they do not offer the same ease of expansion.

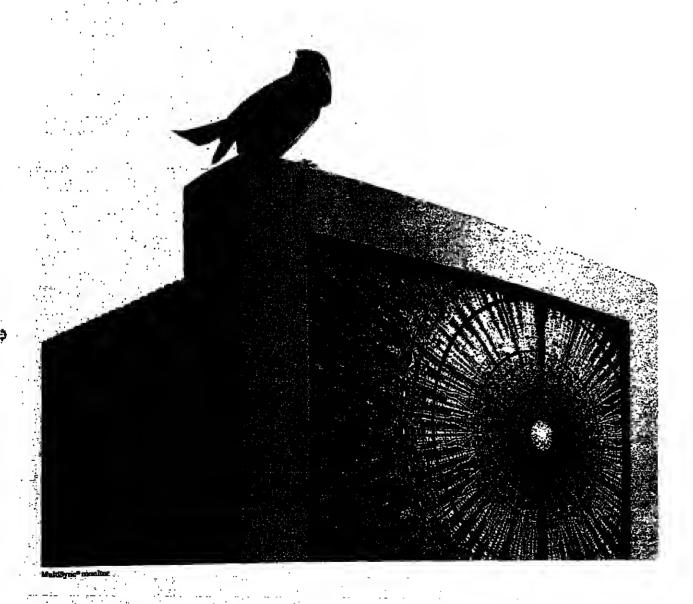
vory & Sime uses Switched Ethernet in-house but routers to link Lans at its London, Hong Kong and US offices to its Edinburgh head office. The Lan Support Company (which helped huild the solntion for Ivory & Sime) expects this kind of model to become common, with routers relegated to the purpose for which they were designed wide area

communications. ☐ Linking hranch offices: Olivier Choron of Dataquest says that most of the growth in the router market is coming from the low-end. He predicts that the European market for all routers will grow from 138,593 units shipped in 1994 to 231,245 in 1995, with low-end routers accounting for 179,710 of the units shipped in 1995.

"Many companies have already linked up their main networks," says Mr Choron, "but the wider availability of ISDN (integrated services digital network) is making it feasible to link small hranch offices,

This can be done economically by using ISDN routers at each site to be connected. Data can then be sent or received over the public ISDN network Continued ou next page

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High speed networks - US research project will link five supercomputer centres, reports Geoffrey Wheelwright

Preparing for the information highway

Speed is everything for the planners of tomorrow's high volume data networks

n order to deliver the grand vision of the information highway that so many industry leaders in the computer and telecommunications have promised, data communications networks are going to need to be fast - and offer huge volumes of capacity.

US telecommunications giant MCI Communications took a step toward making that vision a reality in April when it unveiled a joint plan with the American National Science Foundation to Introduce a new high-speed network known as the very high speed Backbone Network Service (vBNS) which will link five US supercomputer centres.

The National Science Foundation, established in 1950, is an independent agency of the federal government to promote and advance scientific progress through grants to educational and research institutions for

Continued from previous page:

sciences, mathematics and engineering. MCl says the jointly-developed vBNS will be tha first nationwide high-speed network to "use advanced information age technologies that enable massive amounts of voice, data and video to be combined and transmitted at speeds nearly four times faster than currently possible".

According to Bert C. Roberts, Jr., chairman and CEO of MCI (turnover last year: \$13.3hn), the high speed network will offer a chance to test the potential of fast networks using the very latest technology, vBNS will serve as the R&D lab for the 21st century."

"This network will open a whole new world of support for high speed applications and set the stage for the exploration of business applications . . . the technology will play a major role in establishing the next generation of networks and be a benchmark for how the Internet will work in the future."

The vBNS will serve as a national "exploratorium" for developing new critical networking technologies and applications that will run over

structura (NII - sometimes referred to as the information superhighway), says MCI. It will provide sciantists and researchers with faster communications links between supercomputing sites working to solve what US scientists call "the grand challenges."

These challenges, first articulated by the US Office of Science and Technology Policy, are supposed to be "fundamental problems in science and engineering with hroad economic and scientific importance whose solutions can be advanced by applying high performanca computing techniques and advanced networking resources".

The vBNS will link together the Pittsburgh and San Diego Supercomputing Centers; the Cornell Theory Center; the National Center for Supercomputer Applications in Urhana, Illinois; and the National Center for Atmospheric Research in Colorado. The new network service

will be accessible to select applications sites through four access points located in New York, San Francisco, Chicago and Washington, DC, The 155 Mbps (million bits of data per second) and is planned to operate at greater than 600 Mbps by 1996.

MCI is also pursuing hetter ways of providing content on the mainstream high-speed networks of the future. The company's strategy for this lies in joining forces with Rupert Murdoch's News Corporation to "create and distribute electronic information, education and entertainment services to businesses and consumers worldwide".

n a recent announcement, the two companies pledged to create "a worldwide joint venture that they will own equally, leveraging the vast hroadcast, satellite, programming and publishing resources of News Corp; and the marketing prowess, cus-tomer base and intelligent networks of MCI and its global partner British Telecom"

To solidify the long-term strategic relationship, the companies announced that MCI will invest up to \$2bn for an equity stake in News Corp. which would make MCl the largest ontside share owner.

of preferred stock and war- ate, deliver and bill differentirants will be made at the closing of the agreement, expected

"Until today, no one has put together the right huilding blocks - programming, network intelligence, distribution and merchandising - to offer new media services on a global scale," said Rupert Murdoch News Corp chairman and chief executive officer.

MCI's network infrastruc-ture, software development capabilities, brand names and customer relationships in the US and globally will be critical to any success the worldwide joint venture may achieve. According to MCI, the extensive computer intelligence of the MCI network "will allow it

to work with News Corp to cre-

ated products combining telephony, information and entertainment servicea". The company says that these will be sold and serviced as attractive consumer and business packages to MCI customers. "Together, we can produce television, movies and publica-

tions; provide broadband network and direct broadcast capabilities virtually any-where; and leverage effective sales forces and hrand names known around the world," says MCI's Bert Roberts. "Our rela-tionship with News Corp is in perfect 'synch' with what MCI is already doing with BT."

News Corp brings extensive TV and film, publishing and satellite hroadcasting assets in America and elsewhere to the

The new high speed network aims to open the way for the audioration of

worldwide joint venture. including Fox Broadcasting Company, Twentieth Century Fox, the New York Post, TV Guide, BSkyB (European direct broadcast satellite system), Star TV (pan-Asian direct broadcast satellite), HarperCollins Publishers and more than 130 newspapers with leading market shares in the UK and

Australia. "Imagine being ahle to access the innovative internet MCI and Delphi Internet shopping and on-line information over the same service that hrings you first-rate original entertainment," said Murdoch. "Imagine being able to retrieve computarized information stored in the MCI network wherever you are, whenever you want, without limitation. That's the power of this rela-

New European network - multimedia project is a world 'first' - Martin Pipe reports from Berlin

High speed university links

Pioneer system connects medical researchers in Germany and Norway

Turopean multimedia 'islands' are exchanging information via a highbandwidth ATM (asynchronous transfer mode) backbone. An international team demonstrated the Berlin-Oslo internetworked-multimedia pilot project to the press this month.

Using the network, researchers and students are able to communicate effectively with their colleagues over significant distances. The pilot project is likely to lead to a high-speed link between all German universities.

Teleconferencing enables them to work on joint projects in an unprecedented way, bringing the research institutions involved closer together. The three principal teams involved in the Berlin-Osio project are the European Advanced Networking Test Center (EANTC) based at the Technical University of Berlin,

the Konrad Zuse Centre (also

located in Berlin) and Telenor

Research (a section of Norway's public network operator)

The project's costs are likely to reach nearly Ecu22m (\$28m) by 1996. Half of this money has been contributed by DFN, the government-funded organisation that provides communication services to the German

Much of the ATM technology for the project is being sup-plied by Cisco Systems. ATM is the switching technology employed by broadband ISDN. hailed as the large-scale internetworking standard of the

Cisco is a leading global suppller of enterprise network equipment, with a turnover of more than £1.2bn in 1994. According to Phillipe Brawerman. Cisco's European president, "people are now multimedia-capable". Complex concepts are not communicated particularly well through text-based systems, such as conventional e-mail, but the much more 'human' descriptive facilities of sound, graphics and video can be used to get the message across far more effectively, and

in less time, he says. Teleconferencing is likely to play an important part in the

commercial future, since regional offices can share ideas vithout the need to travel. The idea of 'telecommuting' where employees work from homa - has previously been

nication. Commercial organisations not least, Cisco itself - are realising the communicative potential of multimedia and have set up Internet World WideWeb (WWW) pages to dis-

seminate information to a

held back due to currently

restrictive methods of commu-

global audience, For all its benefits and ease of use, the WWW is very slow. It cannot deal with live video. and even digitised pictures take a long time to appear on the user's screen.

These problems do not occur with a high-bandwidth network - as was proved by three demonstrations at the Berlin Technical University. The first linked medical students in Oslo and Berlin, who were able to collaborate on X-rays and medical scans. Each could highlight areas of interest on the images on-screen, and exchange ideas via teleconferencing.

The second project was an

advanced on-line information system for BMW motorcycles. Using an intuitive user interface, a wide range of information on a particular bike could be accessed, including pictures, maintenance instructions (with live video), schematics and technical data.

At a more advanced level engineering students at different Berlin sites called up technical drawings, automatically entering the computer-aided design softwara, Together and remotely - they worked on modifications to the drawings. The final demonstration linked into Cisco's WWW server in San Jose via a 1Mb/s leased

Although not as fast as the 155Mb/s (or 155m bits per second) lines being used to tie together the European sites, the bandwidth was nevertheless sufficient for corporate videos to be run. Try doing that with a v.34 modem which is around 10,000 times

The e-mail address of the writer, Mortin Pipe, is: whatnet@cix.compulink.co.uk

Networking and multimedia: see pages 15 to 18

on a pay as-you-go hasis. ISDN can also be used to tions devices are growing strongly, because ISDN usage connect home-based workers to the company network. Mr Chocosts are within the reach of

ron says teleworking (using computers and phone to connect to the main office) is becoming important in areas such as the UK, Germany and the Nordic countries. Companies wanting to pro-

vide remote access for individuals will tend to install remote Lan access servers. And they will equip remote users with ISDN cards/adaptors or modems and software.

Mr Choron believes that lowend routers and bridges (similar to routers but with less intelligencel will eventually converge to become a single ISDN-based interconnection product. Traditional bridges are dying, he says, but some companies are installing ISDN-ISDN-related communica-

Benefits for home-based workers

small companies as well as offices. Dataquest says the overall European market for ISDN products (including routers and remote bridges with integral ISDN dial-up capability) "grew above all expectations by trebling from 14,158 units in 1993 to 44,443 units in

The market for Switched Ethernet is growing even fas-ter. North American sales grew from \$77m in 1993 to \$330m in 1994. In 1994. European sales were \$101.3m and Dataquest expects them to reach \$302.9m

US company Kalpana was early into the market and

A ROLE REVERSAL

THAT IS CHANGING

THE COMPUTING INDUSTRY

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AN ARCHITECTURE I HAT BAL-ANCES THE VISUAL APPEAL OF

"The USoft Server/Client tool set

is the first solution to deliver adaptable applications

which are completely driven by the business, providing

the ability to immediately respond to business changes'

Mike Overgage Head of IT. Lloyds Bank Securities Services.

North American Switched Ethernet revenues last year. Other suppliers include: Cisco Systems, Digital Equipment, 3Com, Grand Junction and Network Peripherals.

accounted for 66 per cent of

Ethernet switches are in demand because they are affordable, costing around £1,000 or less per hub. So a 15-port switch will cost £12,000 to £15,000. The beauty of the technology is that it will work with users' existing cabling and the Ethernet cards in users' PCs.

Companies adopting Switched Ethernet will also need a wiring hub or hubs costing £2,000 to £10,000, though in some cases switches are replacing hubs, as a way of dividing Lans into smaller sub-

In the longer-term, many of the companies which are buy-

HOW IT WORKS

will opt for 100 Mbit/s Ethernet or ATM in the future. For example, Ivory & Sime's Syn-Optics 3000 and 5000 huhs (used in conjunction with a Kalpana EtherSwitch) can he upgraded for ATM simply by plugging in ATM cards. ATM has wide industry sup-

ing Switched Ethernet today

port. yet it will he several years before there is a wide choice of affordable products. This means that even users who are committed to adopting ATM are unlikely to introduce it this year. When they do, some users will make the leap from traditional Ethernet to ATM in one go. But for those who need extra capacity now. Switched Ethernet may be the answer.

The writer, Joia Shillingford, is Associate Editor of Business Computing Brief, the Financial

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Wilder benefits of networks - the implications go far beyond the office, reports Geoffrey Wheelwright in Vancouver

Teleworkers gain more flexibility

Telecommuting, via the office network, also offers big changes in lifestyles

(JUNE 7 1995

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om Berlin

f all the hype snrrounding computer networks these days, none is as all-embracing as the interest in "networks of networks" - with the Internet being the crowning example. But whether these networks of networks are created using local area networks (Lans), wide area networks (Wans) or connections to the Internet, one of the key driving forces behind them is the demand for the creation of a mobile and remote workforce that does not require large areas of office space and traditional corporate

infrastructures. Employees also want greater flexibility in working arrangements to enable them to spend more time with their families

cut costs and yet encourage higher productivity from their

workforce.
According to Bob Frankenberg, chief executive officer of Novell, the world's largest PC network software company, telecommuting or "telework-ing" is drastically changing the way - and the hours - that people work.
"One surprise is that people

tend to work longer and not just by saving what would have been commuting time, he says. "Since they can work any time and the work is there - it draws them in. We've found there's a ten to 15 per cent increase in the hours that people work ... hut many of our office work structures are a disincentive to work - we are supposed to work during spe-cific hours."

He concludes that the benefit of all this is flexibility - where telecommuters can now organise their time so that they can go out with their family for a noon, in the knowledge that they can also work late at home, if necessary. He predicts a post-industrial revolution change of work and lifestyle.

"We will no longer have specific numbers of hours of work and equipment to tend," con-cludes Frankenberg. "People were once the robots that served the equipment - and now there will be personal choice."

Chris Unsworth, intarnational marketing director for 3Com, a \$1bn-plus operator in the network computing market, also has strong views on teleworking. His company has carried out intense research in this area in the US and Europe.

mong the significant projects reviewed hy 3Com is the "Smart Valley" initiative in California's Silicon Valley. This is a nonprofit, IT pilot programme in tha Southern Bay Area backed by a coalition of organisations such as Hewlett Packard, Tandem, 3Com, Silicon ticipated; 3Com's president Eric Benhamou heads up this Graphics, Pecific Bell and part of the initiative. Stanford University. According to Mr Unsworth, the idea is to facilitate the construction of a

Teleworking in Smart Valley "moves the work to the workers," says Mr Unsworth. There high-speed communications are three types of teleworking: to benefit all sectors of the from the home (which is apparcommunity - in education. ently the most popular -where the employee designates healthcare, local government, more days a week); from a 'satellite office' (generally a shared office located near a large cluster of employee homes) or from with environmental regula-tions; CommerceNet, the first a neighbourhood work centre.

He adds that much of the inspiration for the teleworking project in California lies in the growing demands of environmental legislation on business practice. For example, the 1988 California Clean Air Act and the "ridership goal" of 1.4 passengers per car by 1999, provided a target which focused the attitudes of many Californian companies.

The first results of the "final pilot" unveiled after a study by

WONDER IF YOUR BOST REALISES HIS STAR TELEWORKER IS A 14 YEAR OLD ON A VAGUE PROMISE OF EXTRA POCKET MONEY



POWER BEAKE

Gemini Management Consultants, show that: ☐ Teleworking must be voluntary. If companies have employees who think they would be good candidates for teleworking, they should discuss it with them.

☐ Teleworker productivity gains were "remarkable." Staff estimated that their productivity increased by 25 per cent on their teleworking days, result-ing in a 20 per cent increase for their "work week."

☐ The Smart Valley study also showed that it is essential

for teleworkers to log their bours and output against preset goals. Companies also need to measure their overall performance hased on sales and operating profit, set against goals, plus cost-studies, based on equipment, occupancy and communications costs. There should also be a quality of

work review. Companies have also tended to benefit by reductions in office space. These have averaged 33 per cent, with the economic gain, depending on location, ranging between

\$1,500 to \$6,000 per teleworker. Despite these potential benefits, Mr Unsworth admits that the spread of teleworking will probably be much slower in Europe, as external demands for creating the necassary infrastructure are nowhere near as strong - "I think from a European point of view it will take longer than most peo-ple have predicted," he concludes. "The Smart Valley initiative, for example, was

driven hy environmental legis-

** Virtual private networks - VPNs offer more solutions for multinational corporations, reports Alan Cane

A key competitive factor among telecom operators

Business customers expect advanced connection facilities provided by VPN systems

he ability to offer virtual private networks nationally has become a key competitive factor for the world's leading telecoms operators. Over the past three years, they have been grouping themselves into alliances with one purposa only: to become the most successful telecommunications "supercarrier" able to provide international business customers with seamless communications services.

· The most advanced of these alliances is Concert, owned by British Telecommunications and MCI of the US. It operates world-wide and claims to have signed up 100 big new customers last year and to have £500m worth of contracts.

distance carrier, is at the head of a loose association of tele-coms operators called World-Partners. The list includes Unisource, an alliance between the Dutch, Swiss and Swedish

national operators. Phoenix, a proposed alliance between Dentsche Telekom and France Telecom and Sprint, the third largest US long-distance operator, already seems to be falling foul of tha regulatory authorities in Europe and the US and may not be able to make much progress before 1998, the year designated by the European Union for the liberalisation of telecoms services and infrastructure in Europe.

While not on the sama scale as the big alliances, Cable and Wireless, the UK-based operator with substantial interests in the Asia Pacific region has ambitions as a global supercarrier. Essentially, global supercarriers will provide their customers with ontsourcing services. For a fee, they will AT&T, the largest US long manage their international

voice and data traffic. A significant element in this is the provision of international virtual private networks.

What is a VPN? It is the provision of a national or international private voice and data network service nsing advanced public switches to route the traffic through the public switched network.

The cleverness in the system resides in the switch, essentially a large computer, whose software is programmed to set up the necessary connections. Rather than establishing a fixed private network hased on leased lines, a VPN uses the public network, setting up connections only when required hut providing a range of advanced facilities which are not available to the general oublic.

There are two principal benefits to the husiness customer. First, they are a cost-effective alternative to a leased-line network of equivalent capacity, especially in countries where leased lines command

high prices. Second, they allow a broad range of advanced features to be offered across an entire organisation, even to parts of the organisation where establishing a leased line could not be justified on grounds of

system and information service

Smart Valley has five main

projects: the Bay Area Digital

Georesource (Badger) which

helps organisations comply

large-scale market trial of elec-

tronic commerce on the Inter-

net; Smart Valley Public

Access Network (SVPAN),

which provides Internet access

to schools, libraries, hospitals

and shops and is free to users

in Santa Clara; and Smart

Schools Collaborative which

expands network-based learn-

ing to all 328 schools in Santa

Clara and the Smart Valley

Telecommuting Project in

business and at home.

At the international level, where Concert, WorldPartners and Phoenix are focussing their efforts, the concept can be extended to create a global network with the features and functionality of a national VPN. These features include dialling plans, or company wide unique extension numbers, closed users groups, calling line identification, high capacity data channels and call forwarding.

That are the advantages of VPNs com-pared with private leased line networks which could offer the same features? Telecommunications managers know that building an international network is slow and difficult. Agreements have

to be hammered out with a diversity of national carriers and administrations. Technical problems are legion. Interconnection of different kinds of technical equipment can be a nightmare. Once the network in place, management and maintaining the system

becomes the manager's great-

est headache. According to Cable & Wireless, "many multinational corporations are increasingly looking to reduce their management investment through a single arrangement with a managed network supplier rather than continue to support all the cost of an open ended committment to a private network. An IVPN provides international companies

with the option to mova transparently to supplier management while still retaining a high degree of control over their global networks". An example is Lucas Industries, a UK engineering group,

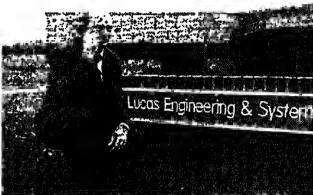
with Mercury, the UK's second largest telecom operator, worth £5.3m over three years.

The network now connects 60 sites in the UK and in the US. The company had been operating a private voice network but structural changes in its husiness were making it less effective.

First it had moved to a larger number of smaller sites, and it was uneconomic to connect many to the network using leased lines. Only 48 sites out of a total of 145 were connected

Second, the company used profit-centre based accounting techniques and it was becoming difficult to charge back telecoms costs to the husiness

Third, there has been a sharp shift in the halance between the cost of public network calls and leased lines: The cost of a phone call has fallen dramatically, hut fixed circuits which make up a priwith offices in the US. Last vate network have not seen a year it signed an IVPN deal similar decline. As a result, the



Steve Hudson of Lucas: "Cost-savings on calls are evident"

private network no longer represented a financial benefit," according to Mr Steven Hudson, VPN project manager for Lucas Engineering & Systems.

Mercury was selected as supplier in September 1993, a pilot ran between October and December and cut over from the old network to the new took place between January and July last year.

Lucas seems happy with the results. Mr Hudson says: "Usage-hased charging has been a great success, costsavings are evident and more people are able to use private

network functions.

"There are henefits which are less obvious to our end-users but perhaps more important to the telecommunications manager.

"Reconfiguring the network, for example, to take account of organisational changes can be done with a great deal less management time - general network support is now the responsibility of Mercury who have all the people in place to make sure it happens 24 hours a day."

Outsourcing report: page 10

SIEMENS NIXDORF

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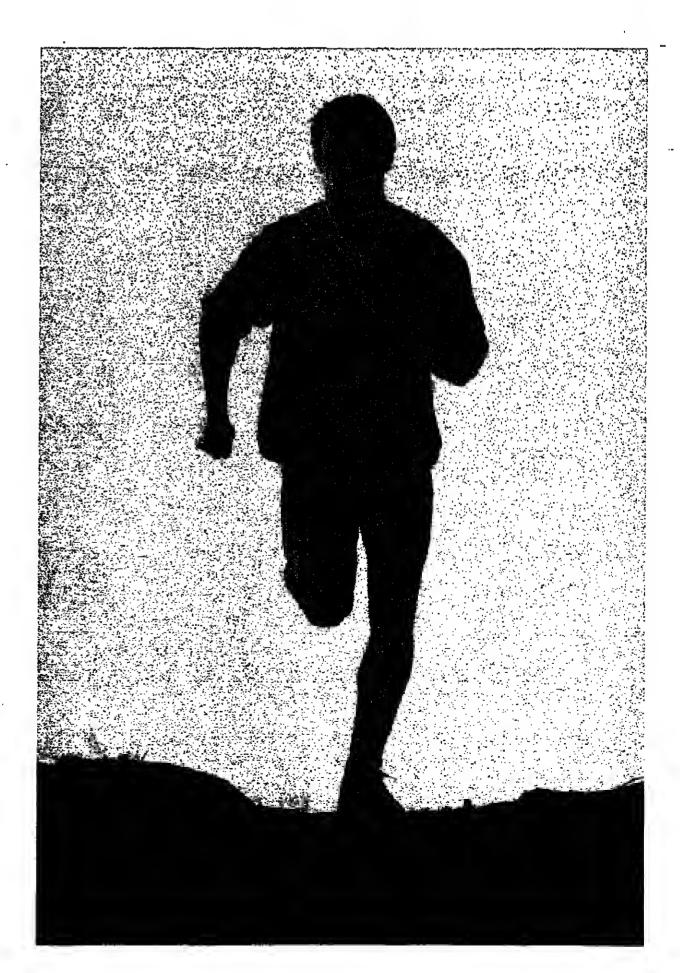
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Optic fibre cables being checked by a BT engineer: the fibre network can

carry television, stereo racio, phone calls and other IT services

■ Fibre optic communications - Light means speed, reports Michael Dempsey

Propelled to prominence

The principle of fibre optic communications is perfectly suited to the information age

ata, converted into a light heam, can be flashed down a microscopic glass tube that is manufactured as a strand of fibre. The fibre itself is twisted around other strands to form a stretch of cable that easily outperforms traditional copper

cabling. Light means speed, and high-speed networks are necessary to match the pace and power of an IT industry that is finally catching up with the real needs of users through potent hardware running resource-hungry software. Optical fibre is the means of high-technology networking, namely handwidth. The more bandwidth you have, the more data you can deliver. More importantly, bandwidth equals the ability to transmit a mix of information in the form of voice, video images and data. This dovetails neatly with the rise of multimedia.

Optical fibre links are more expensive than copper cabling.

And the gradual replacement of telecoms lines with this technology will stretch into the next century. But the unique properties of the optical fibre link have propelled this technology to prominence in cer-tain applications. Security is a huge by-product of data transmitted as light. Optical fibre links can be monitored, but it takes a huge effort compared to copper wiring. This attribute has not been lost on the mili-

The UK's Ministry of Defeoce relies on fibre optical cabling for its £10m Corporate Heaquarters Office Technology (Chots) network. The 5.000 users wired up to Chots have a very fast data network, while their management know they bave opted for one of the most secure networking technologies available.

ICL, the British-based IT company owned by Fuijitsu implemented Chots. Chris Reeves, an ICL infrastructure design manager, has witnessed the rise of the fibre optic network - "several years ago the technology for converting the signal at the terminating end. the receiver, was cumbersome. Reliability was poor and losses of data were frequent," he

Connections have much improved and Reeves finds himself facing a different dilemma. The demand for the raw material at the heart of these networks, the fibres that carry the light signal, has outstripped supply. Last year ICL found itself scouring the globe for manufacturing sources. The high-tech sector works

hard at portraying a self-image of progress at the frontiers of science. But many of the problems it solves are staggeringly banal. Copper is prone to interference from other sources of electrical energy. But this conflicts with obvious routes for internal networks.

he Korean car-maker Daewoo runs computer network cabling up the lift-shafts of its UK headquarters on the outskirts of London. The normal activity of an elevator service could interrupt data signals utilising conventional cabling. So Daewoo called in computer systems supplier Data General to provide a reliable data infrastruc-

Data General installed a £500,000 network that utilised copper cabling to carry data across each floor, on a horizon-tal basis. The vertical element of the network relied on optical fibre signals travelling up the lift-shaft, but impervious to induced noise and electricial

Mike Flatman, a network services specialist with Data General, explains that the two technologies make for a practical partnership: "Telephony is moving to fibre for lines outside a building, but copper is still a sensible choice within a site. ft is cheaper than fibre. A fibre optical network can be double the cost of copper

According to Mr Flatman, it is human skills rather than raw materials that push up the price of optical fibre.

British Telecom harbours

grand ambitions to create an optical fibre network stretching across Britain. The objective is to create a society where multimedia transmissions can be translated into their ideal communications format. This is Asynchronous Transfer Mode (ATM) and allied to fibre optics it promises to leverage BT out of the old world of the telephone company and into a new role as mass data conveyor.



hnology of yesteryear, cable-laying in the streets of Britain in the early 1900s - a technical marvel in its day

One company cashing in on the migration to fibre optics is Metropolitan Fibre Systems (MFS). Its nine-year history reflects the rise of this technology. MFS has run fihre optic links into 40 US cities and now operates in London, Frankfurt, Paris and Stockholm.

Financial market news pro-

vider Dow Jones Telerate employs MFS fibre optics to distribute its business TV service in London. DJT's clients are finding planning permis-sion for satellite dishes increasingly hard to gain, so transmission down fibre optic lines was more attractive than using a

Mike Hooles, head of network development for MFS in the UK, is now anticipating the next step in fibre optics - photonic switching. Currently, the light signal on

a fibre optic line needs regular re-amplification. In order to do this it must be converted from light hack into an electrical

signal. Photonic switching promises to deliver even faster switching of data by magnifying the signal and cutting out this regeneration process.

It is a long way from commercial application, according to Hooles - "using photon par-ticles will be more efficient and reliable, but at the moment it's ■ ATM - asynchronous transfer mode - report by Paul Taylor:

■ A proliferation of peripherals - Networked printers, scanners and fax equipment - An update by Joia Shiffingford

Stronger emphasis on ease of use

Multifunction network machines that print, copy and fax are coming to the market

ocal area networks (Lans) came into being so that users could share costly peripherals, such as printers. Today, falling prices and a wider variety of products mean that companies can afford to plug far more into the

☐ Printing from PC net-

works: Three key trends characterise the market for networked printers: greater ease of use; better network management: and lower prices for colour. Hewlett Packard (HP) says its colour and monochrome laser printers, and high-end inkjet printers can be plugged into

just about any network. With the new emphasis on ease of use, when you connect one of the latest printers into a network, it announces itself to the network and configures itself," says Mr Malcolm Hancock, a senior industry analyst

Mr Martin Hurren, a spokesman for HP, says the company is providing better network management through its JetAdmin software. This comes with all HP printers bought with a network interface and enables a network administrator to monitor and configure printers from a remote per-

sonal computer. The software also makes life easier for users by belping them to send their print jobs to the right printer on the network, for example, one which has A3 paper, colour, the right typefaces, or tha right amount of memory. And it tells them when the printer is out of paper. JetAdmin will be bundled in with Windows 95

dows graphical user interface). Today's networked printers can he shared between very large groups of people. For example, all 100 people in the UK office of market analysts Dataquest can access any of the printers on the network.

(the next version of the Win-

In addition, throughput is very important. A fully net-worked. 600 dpl, 16-page per supporting 12 (or more) users costs around £3,500, according to Mr Hurren. For smaller groups of 5-10 users, 12ppm is probably adequate.

Hewlett Packard is the market leader in the networked printer market (apart from high-speed machines printing over 50ppm).

Last year, HP had a 36.7 per cent market share of all printer types, according to Dataquest. with no competitors approaching this figure. Other networked printer suppliers include Brother, Apple and Lexmark (formerly part of IBM). Mr Hancock says Brother is in a strong position in the UK with products ranging from personal printers to 600 dpi.

Apple is also doing well, partly because it has a loyal installed base of Apple Macintosh users, but also because its products are selling well into the PC and network market

Lexmark introduced a new range of products called Optra earlier this year including networked laser printers with a print quality of 1,200 dpl and Mr Hancock is expecting this to contribute to "phenomenal year on year growth".

raphical device interface (GDI) laser print-ers are also becoming available for PC networks. These print directly from the Windows page description lan-guage (unlike HP printers which use the PCL printer control language) and tend to be cheaper than PCL-hased

For example, NEC of Japan says its SuperScript 660i is a fully networkable printer, not only for the GDI Windows environment but for all other PC-based networking in medium-to-large organisations. It costs £799, and includes a 200sheet hopper and built-in

PCL5e emulation. There have also been some changes in the market for 50 ppm-plus printers. Alan Sutcliffe, support manager for high-speed printers at Siemens-Nixdorf, says: "We've seen a remarkable swing towards network printing, especially at the

12ppm network printers with high end. Many people are moving high-speed printers away from mainframes and breaking them off into separate networks. The printer network can then be given instructions (for example, for printing, mailing and enveloping) by users on other company local area networks, perhaps at dif-

> ☐ More scope for scanners: It is much harder to instruct scanners from a network - "scanners cannot be plugged into networks," according to Mr Hurren. But this is likely to change within a year as new products come to market.

> At present, office scanners plug into a single PC. In the future, it will be possible to plug a scanner into the net-work, so that any user can walk over to it, scan in images and route them to his or her PC. Popular uses for scanners nclude optical character read (transferring text on paper on to a PC screen) and scannning in photographs, pictures or

However, Mr Hurren (previously HP's scanner manager). says a colour scanner can also be used as a cheap way of providing colour photocopying. A colour flatbed scanner from HP costs £839 (exc. VAT) and a black and white scanner costs

Scanners have been designed to be as easy to use as photocopiers. When the user wants to use the scanner for copying, a set of controls (similar to

those on a photocopier) is displayed on his or her PC screen.

☐ Slow take-np for PC fax: Scanners are particularly useful for scanning in company logos, which can then be used on computer-generated faxes. In a 1994 Dataquest survey of 355 European users. more than 50 per cent of those not currently sending out faxes from PCs, said they would prefer to do so via a network fax server instead of via a modem (a communications device) directly connected to or inside their PC.

The users considered networked fax solutions to be cheaper and easier to use. Only 21 per cent said that they would choose fax modems in the PC. Delrina's Winfax Pro PC fax software among the survey sample.

Take up of PC-based fax is still low. However, 36 per cent of the survey sample said they would buy a solution in the next 12 months.

But in the next few years. the trend towards connecting more and more peripherals to the Lan could be reversed. This is because a growing number of machines combining more than one function are coming to market. For example, Rank Xerox's digital copier-cumprinter-cum-fax for networks is out this month. It is likely to be the first of many such networked products offering printing plus photocopying and/or

Technology of high promise he next generation of eoterprise-wide

computer networks will need to be able to carry all an organisations' multimedia electronic traffic including voice, data and video at very high speeds to the desktop. Many existing local area networks (Lans) based on the

standard four, 10 or 16 megabits per second transmission speed of standard Ethernet and Token Ring Lans are already creaking under the load generated by faster PCs and network servers, larger files and more complex applications.

Emerging data-intensiva applications and technologies such as multimedia. groupware, imaging and client-server databases will soon make 100Mbns networking running on an optical fiber backbone a necessity.

There are a number of enabling technologies including the various varieties of Fast Ethernet, Fibre Distributed Data Interface (FDDI) and Frame Relay capable of delivering such additional bandwidth and performance.

However, it is generally agreed that asynchronous transfer mode (ATM) is the most promising. ATM technology will increase transmission speeds initially to around 155Mbps but in the long term could push transmission speeds up to as much as 622Mbps - "ATM is

likely to revolutionise the computer networking industry and the boundaries between computer and telecommunications networking," says Robert Madge, founder and chief executive of Madge, the

computer network specialists. ATM is an advanced packet-switched technology based on international standards which converts data into short fixed-length 'cells' each containing 53 bytes which can be transmitted at high speed to form a 'virtual circuit'. Since packet size is fixed switching can be done entirely in hardware which is much faster that software

switching. This system allows very high speed switching with negligible delay and constant features which are crucial to real-time voice and video.

TM is ideal for a wide range of applications Linclnding traditional data communications, imaging, video and multimedia, says Price Waterhouse in its latest Technology Forecast. "Of all the switching technologies, ATM is the one

that holds the promise of handling all types of traffic well and providing a common telecom architecture in public private and premise networks as well as in the home," says the forecast

Most networking product manufacturers including Fore Systems, Newbridge Networks, General DataComm, Cisco, Bay Networks, Digital Equipment together with StrataCom and Northern Telecom already have ATM switch products on the market. Some

telecommunications carriers, including AT&T and Sprint in the US, are offering their customers services based on ATM technology, although widespread deployment in the public network will have to wait mitil at least 1997 after inter-networking standards

are worked out. Just how quickly ATM technology is adopted by corporate customers for their networks is a matter of

considerable debate. John Chambers, Cisco's chief executive, says: "It is widely believed that gaining the benefits of multimedia means making a massive investment to deploy emerging high-speed technologies. But multimedia applications can be delivered today without a huge new resource commitment . . . ATM high-speed switching and other advanced technologies can be brought into the blueprint when appropriate.

Nevertheless, with ATM equipment prices already tumbling, most analysts are forecasting a rapid take-up of ATM technology, particularly in the US.

Michael Beardsley of Merrill Lyuch predicts that the ATM equipment market will grow from \$165m in 1994 to \$2.3bn

Racal's network for National Grid helps to keep the powers a darkness at bay.

Everyooc expects constantly available power; in kitow that the lights will work, and stay working, whenever switched on.

To enable this expectation to be med the National Grid Company has the exacting task of constantly balancing supply against demand and maintaining system stability and security.

Bacul-Datacom Limited, Landala House, Stalion Road, Hnok, Hampshire RG27 9JF, England.

Key to meeting this commitment is a network of front-line and back-up computers that provide continuously updated power system information and performance analysis.

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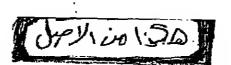
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Communicating through technology [1746/16]



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Mobile communications - Radio links with small PCs: an update by Tom Foremski in California

isions of the future

At least \$50bn is likely to be spent on building personal communication service (PCS) networks in the US in the next few years

A vision of messages falling out of the sky and into small, portable computers is what Bill Atkinson, chief scientist of Californiabased General Magic sees as becoming a reality in the near

It is a vision that many users of portable computers share. After all, what is the point of a portable computer if you cannot use it to communicate with colleagues and send and receive information on the move? Today's computers have outgrown the "personal" tag and have moved towards becoming communications devices, a feature even more important to portable com-

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Mr Atkinson and his company. General Magic, are developing a communications technology called Telescript that can route messages along vir-tually any kind of communications channel to reach users of what it calls "personal intelligent communicator devices."

These devices are distinguished from other similar portable, hand-held computers such as Apple Computer's Newton, sometimes referred to as personal digital assistants

"A personal intelligent communicator is closer to a telephone and e-mail than it is to a desktop computer," explains Mr Atkinson. Telescript makes possible intelligent handling of messages, allowing the creation of software agents that can automatically sort e-mail ages, and can go out on their own to track down data from on-line services and bring It back to the user.

Part of General Magic's vision is already embodied in the Sony Magic Link and Motorola's Envoy product. The Magic Link needs to be plugged into a telephone line but the Envoy has a wireless link that uses the US-based Motorola and IBM-operated Ardis wireless network to

Other types of portable computers can be equipped with wireless communications capa-Industry Association predicts bilities with the addition of cel-

population will be using PCS. cellular phone technology is still far from being a reliable cellular phones, and paging services. data communications medium

line," Mr Atkinson says.

ter performance. The US gov-

ernment has allocated a nar-

row band of radio frequencies

that will be used solely for dig-

ital communications known as

personal communications ser-

vices (PCS).
At least \$50bn is expected to

be spent on huilding PCS net-

works in the US over the next

few years. Federal Communica-

tions Commission (FCC) chair-

man Reed Hundt, called the

investment "the greatest one-

time private sector investment

in any single industry in the

arrives, mobile com-

access to high speed, reliable,

wireless data communications.

By the year 2003, the US-based

Personal Communications

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But there are still standards - "analog celinlar phone techissues to be decided. For examnology has a signal quality ple, will PCS use a variation of one-tenth as good as hard wire. You can't put a modem on the the European Global System for Mobile Communications, or cellular network and expect it the Code Division Multiple to work as good as a telephone Access standard? So far, leading US communications com-However, digital cellular phone networks will offer betpanies are pursuing different and incompatible strategies.

> Atkinson says, it that it is not reliant on the communications technology and thus might become the 'glue' that could bind incompatible networks. Telescript has been licensed to US communications company AT&T, France Telecom and Japan's NTT, so it has the potential to become a global telecommunications standard.

The beauty of Telescript

Many portable computer users are not going to wait for PCS. A study hy market research firm BIS Strategic Decisions, found that about 3 per cent, or about 300,000 of US portable computer users had wireless data communications capabilities at the end of 1994. This figure, the firm predicts, will grow to 2.8m users or 16 percent of all US portable com-

Much of this growth will come from more reliable wire-



Networks 95 Exhibition Readers of the FT's Review of Information Technology are being offered free admission to the Networks

95 show at the National Exhibition Centre, near Birmingham, later this month, provided they produce a copy of this issue of the Review at the door. The event is being held from Tuesday, June 27 to Thursday, June 29. For more details, call the organisers, Blenheim Exhibitions, London, telephone: 0181 742

Free entrance for

less data communications products and packaged systems for specific tasks. For example. Compaq Computer in partnership with wireless data network provider RAM Mobile Data, Telescan, AT&T and Wireless Telecom, have created the Mobile Financial Workstation targeted at investors.

Using a Compaq Contura Aero notebook computer. equiped with an Ericsson wire less cellular data modem, users can retrieve financial data from virtually anywhere in the US. Through Telescan's online information service, they can track sudden stock market and download analytical infor-

There is also another wireless data technology that provides faster data con tions than cellular phone-based systems and could become a rious competitor to PCS. Tha US company Metricom is building lts Ricochet Micro Cellular Data Network in five larger US metropolitan areas - Sesttie,

Ricochet offers 100 kilo hit per second (kbps) communication speeds compared with 19.2 kbps for cellular data networks. Ricochet uses a technology called spread spectrum

Chicago, Boston, Atlanta and

Washington. These networks

will be operating by the end of 1995 and will be expanded to

surrounding areas.

use of special PCS frequencies. Another advantage is price: a flat monthly fee of between \$3 and \$30, depending on how fast they want to communi-

The higher data capacity of Ricochet also opens up wire-less data networks to the transmission of large, graphics files, which cellular phone networks cannot handle easily. In addition, Ricochet provides an interface to the Internet and to private wide area and local area networks. It also does not require expensive tower-based radios to relay messages. Metricom says that its small toaster-sized radios can be eas-

and huildings to provide wireless communications over a

So far, the system has been tested in Silicon Valley where it has been used by companies to provide wireless data commications for both desktop and portable computer users within their campus area.

Ricochet works well, but for the moment it suffers from one key flaw in that it is slow at handing-off communications between different cell areas. This will make it difficult to use in a moving car. Yet its relatively low price is certain to attract portable computer users who do not want to pay a premium for mobile communi-

M Electronic data interchange

Community spirit in electronic trading project

John Kavanagh reports on a pioneering EDI application among leading UK construction: companies

ight of Britain's biggest construction groups have united in the latest manifestation of community spirit in promoting electronic data interchange (EDI)..

EDI is the exchange of documente such as orders and invoices between different companies' computer systems. Community action is gradually finding a place beside the "bigdays, when retail chains and car manufacturers forced their suppliers into electronic trad-

The new Construction Industry Trading Electronically (Cite) project Went live in April after joint development and a modest combined investment of £30,000 by Alfred McAlpine, AMEC, Balfour Beatty, Costain, John Laing, Tarmac,

Trafalgar House and Wimpey.
They invited seven material suppliers - ARC, Blue Circle Cement, British Steel, Frank Parker and Co, Graham Group, Greenham Trading and Pioneer Concrete - plus five quantity surveyors: C. E. Ball, Cyril : Sweett, E. C. Harris, Gardiner and Theobald and MDA Com-

be Cite community has started with the elec-tronic exchange of invoices, using a simplified version of the international Edifact standard message, plus hills of quantity: here it has developed its own message, arguing that the complexity of the Edifact standard would

hold back progress.
"An international standard has to be all things to all men, says Tim Cole, head of consultancy Interlock, which was contracted to manage the proj-

Trading partners still have to agree on its interpretation in their particular case. Instead, the Cite partners have taken a pragmatic approach and developed their own message structure and rules." Pragmatic is a word much

used by Cite partners. Some have worked on Edifact standards through the construction industry group, Edicon, since the late 1980s; hut they got together over Cite because Edicon had not achieved "prag-matic implementation," as David Jones, information technology director at John Laing,

John Drabble, business information manager at Blue Circle Cement, agrees, but points out that plans for three Edicon pilot projects, which would have been similar to CITE, were abandoned when the recession struck.

Tim Cole at Interlock says a community approach is appropriate because of the highly fragmented nature of the industry, with tens of companies ranging from huge civil engineering groups to firms of painters involved in big pro-

"It's not like the automotive industry, where a big customer

can dictate to its suppliers," he nies saw that electronic trading needed co-ordination at industry level so that it could get off the ground for the good of the whole industry."

The Cite partners point out that this thinking is in line with the recommendations of the recent report by Sir Michael Latham and the Construction Industry Board, commissioned by the government and by the industry, which made special recommendations on procurement, partnerships and reducing costs.

The Cite project worked with a relative newcomer to KDI in Europe, the US network services and software supplier Harbinger, to put together a which could enable companies to join quickly. The package is free for 60 days, then costs £995, plus £400 a year for main-

Fees for the network service, which directs messages between trading partners. range from £20 to £50 a month There is also a Cite membership fee of £100 to £350, depending on company size: this covers support and further

However, these items are secondary, says Mr Cole at other networks. The aim is not to sell software and services but to get the industry moving on electronic trading.

The urgency of this call is underlined by Trafalgar House with the example of a trading partner which supplies it with protective clothing and sends it 13,000 involces a year, mostly for under £100.

Along with other Cite members, Trafalgar House is integrating Cite with its corporate systems so that electronic invoices can be reconciled with orders and paid automatically. The partners agree on the

benefits, which are common to most EDI projects. Paper handling is eliminated: invoice details are no longer keyed into a computer, printed and posted at one end and then handled and keyed into another computer at the receiving end, with all the potential for human error. Information is available to both partners almost as soon as it is prepared by one of them, as postal delays are elim-

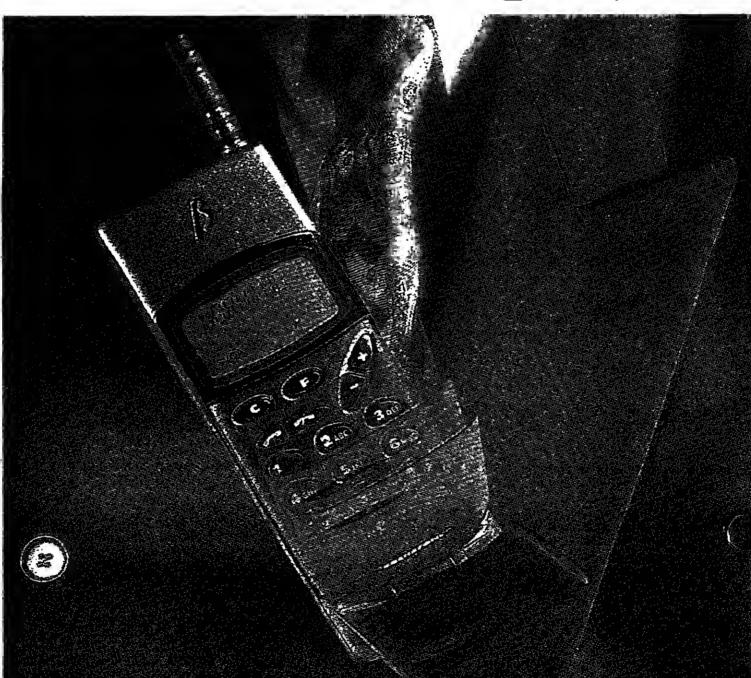
'n addition, Mr Jones at John Laing points out that setting np electronic trading links damands close co-operation, to sort out the technicalities, so there is the intangible benefit of true partnership with customers and

The Cite partners are already looking at more transactions. notably orders - and they are thinking big. Ideas here include links from sensors in cement silos at concrete products manufacturers back to their computer systems for automatic ordering via EDI to cement manufacturers when stocks reach specified levels.

The partners are also looking to expand the Cite coverage: they have done a mailshot to 600 companies, gaining 200 positive replies so far.

Project management report: see page 13

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he Benefon Betacs is the mobile phone for those who demand nothing but the best. Reliable, resilient and more ergonomically designed, it's more human than ordinary mobile phones. Voice control battery saving. Intelligent charging system and battery maintenance. Laser-cut

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NEW ETACS!













Engineering and office staff at BAe use 10,000 personal computer 1,600 workstations and 400 mid-range computer systems

Project rationalises a vast array of systems

Compoter Scieoces
Corporation is a \$3.3bn
company with a pedigree in
outsourcing and systems
integration that dates back
to the era of the Apollo
moonshots and computer
management for Nasa.
From April 1994, CSC took

From April 1994, CSC took over responsibility for the computer operations of British Aerospace in a ten-year £1.2bo cootract. This puts CSC in control of 10.000 PCs, 1,600 workstations plus 400 mid-range systems. BAe also contracted-out data centres runniog large mainframe compoters and Cray supercomputers. These machines calculate fantastic permutations of data in massive equations that simulate problematic areas of design, such as airflow over aircraft surfaces.

One of CSC's priorities has been to rationalise the vast array of systems run by 1,500 BAe IT employees, spread across 14 business units, who now work for the US ontsourcing contractor.

Mr Les Wright, CSC network manager for the BAe project, explains that after reducing the total number of data centres from 24 to 10, rationalising the internal data communications empire "was the second front in the

war". CSC was confronted by what Mr Wright characterises as "Heinz 57 varieties of systems, vendors and protocols". His reaction was to establish a network that

establish a network that accommodated the inevitable range of machines and programs to be found in a company the size of BAe while moving the entire community towards true inter-connectivity and information sharing.

BAe's original network



Les Wright, CSC network

was based on an IBM communications protocol, Systems Network Architecture (SNA). CSC took this structure and integrated it into a new arrangement using a tried-and-tested means of transferring data known as TCP/IP.

It may not be leading edge, and its success stands in direct opposition to the expansion of an EC-backed network protocol called OSI, but TCP/IP is popular. And this popularity means it works well in the commercial arena.

"TCP/IP is pretty moch universal," says Mr Wright, "every vendor supports it, the Internet is built around it and as far as integration goes, we feel it gives us a platform in place that has worldwide acceptability."

The next phase of this ambitions data communications revamp is taking place at the local level of computing resource. The idea is to create a route out of every department into a company-wide data exchange.

Again, CSC has opted for a commooplace local area network design, Ethernet, that will accommodate previous methods of working while offering a corporate framework. BAe staff should find themselves migrating to the new network without any tranmatic npheavals.

CSC has spent £2m on revising the network so far. Mr Wright reckons that it will take between £1m and £2m to complete the job. The objective is BAe's very own data superhighway that will allow staff to share engineering data and other

critical project information.
With voice, data and video images flowing within the company, BAe will enter the world of multimedia. But CSC is pragmatic about this amhition. Mr Wright explains that while the software that will carry oot complicated group working tasks is coming on to the market, not all of these elements are actually available yet.

With a systems integration contract that stretches well into the next century, CSC is planning for the long term. The IT industry is expected to catch np with this vision and deliver the final tools for the BAe project in the very near future.

Michael Dempsey

THE FT REVIEW OF **Information** Technology

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Systems integration - Wide area network projects demand a complex mix of skills, reports Michael Dempsey

A pivotal issue among users

Large-scale network systems integration 'still demands a lot of effort in backroom'

omputing is a critical and expensive business function. The last decade has seen a growing number of organisations choosing to contract-out all or most of their IT operations in a bid to control budgets through fixed contracts.

The largest projects demand

The largest projects demand a mix of skills that few contractors can provide on their own. Despite the best efforts of IT professionals any significant organisation acquires different systems as departments attempt to pursue independent purchasing policies.

This kind of autonomy is attractive to the users but

This kind of autonomy is attractive to the users, but when the entire husiness needs to move on, it leaves the IT experts facing a nightmare of incompatible equipment and standards. Pulling these elements together has become a key mission in itself. So the booming market in outsourcing IT functions has spawned the discipline of Systems Integration (SD.

The effective SI contractor must strike a balance between ohvious technical options and the desires and fears of the user community. Wiping out an entire infrastructure and starting from scratch might make sense to the networking specialist, but it will alienate end-users whose instinct is always to stay with the famil-

Deutscha Press Agency

(DPA) recently renovated its computer systems in an £8m project involving ICL, the UK systems company. DPA's staff were happy for the outside contractor to install state-of-theart computer systems to route data signals within the Hamhurg headquarters. But they refused to part with cherished terminals that have sat on DPA desks since before the era of IBM-standard PCs. These machines are antiquated by any standards. But they are customised for news writing and provide specific editing

DPA's 300 reporters.

ICL business manager Stewart Campbell believes that this contract illustrates the central dilemma of SI – "at DPA, the challeoge was to keep the customer up and running without a very traumatic changeover.

ands that are tailored for



As information technology spreads throughout the business world

They wanted a complete new system but they had to keep those edit commands!"

The standard desktop PC now packs enough processing power to supervise traffic management on local data networks. Dedicated network workstations have taken over the role of mid-range computers that would cost upwards of £100,000 to install. Open systems, the ability of software

from different sources to run across every item of hardware, is taken for granted. Why should integration still present problems?

John Smith. director of global network services for the European arm of outsourcing and SI giant Electronic Data Systems (EDS), has experienced the gulf between theory and practice in connectivity.

"To me, it's a fallacy that

open systems means open connectivity. Open systems have been fine from the users' point of view, but wiring up a large network still demands a lot of effort in the backroom," he

Smith acknowledges that almost every contract contains some disparate elements that are not suited to large-scale integration — "inevitably there is some clash between our desire to tie the client's systems together and the existence of some proprietary product that won't fit in".

uct that won't fit in".

But the customer must be appeased - "we try to provide all of the service to everylody that they claim to have received from the original setum"

set-up".

Hitachi Data Systems are a typical EDS SI client. Smith oversaw the implementation of a new European network for

"We had to move them to a better platform while consolidating and improving services," he adds.

Smith pours cold water on the idea that an international data communications web can be installed and activated at the flick of a switch — "it would be the best thing in the world if you could change over at a given second on a given day. But in reality you change the network commections one at a time and migrate over an extended period," he says. Technology is fust time issue

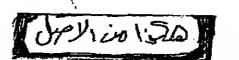
extended period, he says.
Technology is just one issue facing the SI contractors. The European Union's Capital Adequacy. Directive is due to be implemented by central banks from January 1 1996. This stinulates standards of risk management.

EU Banks are evaluating their reporting systems an commissioning urgent ungrades: Syntegra, the SI arm of British-Telecom, sees Camtal Adequacy as a question of converting and delivering information into one central model almost instantly. It will be selling a network control program that promises to go ern this tricky process an allow banks to meet regulate pressures. This suite of so ware does not have a name y but the price tag indicates his how pivotal network SI has become. Synteers will rele it for between £500,000 an £5m. If the data communic tions experts have got it right this will be the cost of realiting reconciliation in the banking community.

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Financial Times. World Business Newspaper.



Final



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report: page 10.

As the business world becomes networked, computer security and efficient network management are crucial issues, especially in the

■ Network management - Companies face increasing risks as their networks become more complex, reports Nuala Moran

Problems can grow as networks expand

IT support is not the end of the networked systems cost story. Failure in any part of the network can result in lost business

The growth of open distributed computing has put power in the hands of the end-user and made the business of managing and controlling networks immeasurably more fraught and complex fraught because the computers are running applications that are critical to a company's success and competitive edge. and complex because the networks link an array of products from a variety of vendors, different technologies and mul-

in short, the proliferation of distributed computing has exposed organisations to a higher level of risk, just at a time when it is becoming increasingly difficult to maintain control.

tiple applications.

One of the paradoxes of the age is that as computers have fallen in price, computing bas become much more expensive. As Robert Aitchison, network services marketing manager of

Siemens Nixdorf Information
Systems puts it: "The explosions, almost 100 of the 136 sampled said they are planning sion of client-server computing has been fuelled by the apparent affordability and seductive simplicity of local area network systems in comparison with central mainframe-based systems."

Recent studies by Gartner, the market research group, show that the capital cost of a personal computer connected to a local area network accounts for only 15 per cent of its annual cost. The remaining 85 per cent is attributed to support costs. Gartner quotes average annual operating costs of £5,400 per personal computer of

which £4,600 goes on support. Mr Aitchison points out sup-port is not the end of the networked systems cost story. Failure in any part of the network can result in lost busi-

There is no relief for compa nies which would like the world to stand still while they get to grips with the infrastructure, back-up and support issues, because the complexity of networks is poised to increase still further.

In recent research carried out by Unisys, the computer and information management company, on the networking needs of leading UK organisa-

sampled said they are planning to roll out a mobile computing strategy over the next three

Mohile and remote worker need to access applications such as electronic mail, sales enquiries and order-processing using mobile phones and laptop computers which have been properly integrated with the corporate network

Mr Peter Burke, network marketing manager at Unisys says: "As companies move closer to the customer, the technology goes to the edge of tha enterprise. But although the end-users are 'computer literate, they can't be expected to look after the equipment in the back room."

At the same time, computer applications which serve the customer must be up-and-run-ning all the time or the company cannot transact its busi-

In addition, however companies try and divide responsibil-ines, most businesses do not have enough skilled networking staff.

Gavin Roach, IT consultant in IBM's clieot-server organisa-tion agrees - "the users may have all the power, but it's no good expecting them to do

Mr Roach believes that after this being a fight over territory," he says. "There are business choices to be made about a sharp move away from cen-tralised to distributed control of networks, the pendulum is now swinging back. He quotes an engineering company which replaced Cad-cam (computer sided design and manufacturing) terminals - linked to a mainframe - with Sun workwork. stations on every desk. To manage data flows, these work-stations were linked to local

Many companies, defeated by spiralling costs, are outsourcing their network management

area networks (Lans). It was then realised that back-ups were not being done and different parts of the organisation were on different software releases

Lan servers were introduced to manage these processes. Soon it made sense to locate all the Lan servers in a single location and the responsibility for them was handed back to the IT department, giving the company the best of botb

"Companies have got to stop

what is managed centrally and what is managed in a hranch. There's no point in going to the centre to register a new user on a local area net-

"However, it is appropriate to have one central copy of the organisation's data which every branch has to refer back

There are now plenty of moves in the marketplace to bring back the consolidated approach to the management of networks and computers, says Robert Elmsley, software marketing manager for workgroup computing at Digital.

The users' dream is of a single view of their networks which will allow them to manage all aspects simultaneously from a single workstation. These include: the physical network, network traffic and devices such as hubs, hridges and routers (in other words. traditional network management): computer systems attached to the network and the distributed applications running across the network.

Products such as Hewlett-Packard's Openview, Sun's Net Manager and IBM's Netview provide part of the answer. These tools are promoted as being open, allowing software vendors to interface their applications but as yet no network management product network through a single Inter-

In February, Hewlett-Packard announced its Framework programma under which it will make strategic agreements with software companies such as Oracle, Computer Associates and Legent to integrate

their management environ-ments into Openview. "In future, there will be one interface and an end to arguments about who owns a prob-lem," says Yolanta Palecka, HP marketing manager for Open-

A British company, Micromuse of London, claims to bave developed a packaged software solution for supporting and hacking up distributed

corporate networks. Its product, Netcool/Omnibus provides an enterprisewide view of network fault status, collecting information from other network management systems such as Open-

□ Continued on next page. Outsourcing and buying-in (which is also sold by Digital). IT services: see next page

Data protection on networks

Anxiety rises over security

Louise Kehoe on problems emerging in the on-line business world

be popular picture of a computer backer is that of a pimply youth who gets his kicks out of breaking into private computer networks and leaving offensive messages that pop up on users'

The truth is more sinister. According to computer security experts the latest generation of computer backers, or "crackers" as they are known in the trade, are motivated by money rather than technical challenges. They are intent upon stealing valuable information such as credit card numbers, or conducting industrial espionage.

While internal computer security can be controlled hy limiting access to information on a "need to know" hasis, it is far more difficult to protect corporate data from external incursions once a company's computer network is linked to the outside world, via the

Yet husiness use of the Internet is growing rapidly. In January, there were 1.3m computers on the Internet registered to companies, an increase of 132 per cent over the previous 12 months.

To protect internal networks from unwanted incursions. many companies deploy "firewalls", or access control systems, that sit between the public network system and their internal networks. Firewalls allow network traffic to pass only according to an organisation's pre-defined security policy.

Companies that install the latest firewall systems can be reasonably certain that their internal systems are secure. However, just as thieves become smarter at defeating new types of locks, so com-pnter hackers work at penetrating new firewalls. Another essential part of

computer accurity, therefore, involves keeping up with the latest "upgrades" and "patches" that are regularly issued hy computer and soft-ware companies in response to the hacker incursions. There are other problams emerging in the on-line busi-ness world besides protecting

the data on private networks. These dangers include competitors or hackers, stealing, diverting or altering electronic husiness information that is transferred via the Internet. Thus, user-authentication, to ensure that a user of the network is who be or she claims to be, is also essential. Privacy

of communications, using encryption, is also needed to enable users to send sensitive information on-line or to secure business transactions such as placing orders and bill-A new approach to Internet security, recently introduced

using a dedicated computer to secure networks. Called Sun-Screen, the system automatically encrypts data traffic hetween two similarly equipped networks without users being aware of, or able to prevent it.

In effect, SunScreen turns an

open network into a "virtual private network, like having dedicated lines," says Eric Schmidt, chief technology officer, Sun Microsystems, the leading supplier of Internet servers. The system uses a high level encryption algorithm that, if property implemented, is "not breakable in

our lifetime," be adds. Businesses using the Internet must make decisions about security while also considering cost, efficiency and convenience," says Mr Schmidt. Sun-Screen is a maximum security system aimed at industries such as telecommunications. banking, health and government.

Unfortunately, US export restrictions limit sale of this version of SunScreen to US customers - except by special export licences that must be ohtained for every overseas order. Sun is, however, developing an export version of the system that will incorporate the strongest encryption allowed. A hasle tenet of computer

security is that organisations must carefully plan and implement links to the Internet. Yet in many cases, Internet access develops on an ad hoc basis within an organisation. One individual may arrange a hook up to the internet and unwittingly expose the entire corporate network to potential risks.

"Computer security is lagging hehind the implementation of new systems," says Daniel White, director of the Ernst & Young's information security effectiveness group.

ore than half of the 1,200 US companies surveyed by Ernst & Young, the business consulting group, said that they had suffered financial losses related to computer security.

Even companies that have gone to considerable lengths to protect their internal networks from unwanted intruders cannot be sure that every computer containing their data is fully protected. A company may, for example, share sensitive information with a supplier, or customer, but it is difficult to ensure that that company's computer is prop-

The financial risks go beyond the potential loss of valuable data. Concerns are growing among US corporate computer managers about potential liability claims if, for example, an employee commits a crime on the internet hy hreaking into another company's computers or distributing material protected by copy-

By far the strongest motivation for Internet security is the trend towards electronic commerce. This goes beyond the consumer applications that are beginning to emerge in the form of on-line catalogues to include "husiness-to-business" transactions.

"People are not going to conby Sun Microsystems, involves duct business-to-business transactions over networks without serious security," says Mr Schmidt. "They are not going to take a chance with real numbers and large amounts of money for all of the reasons that you can imagine liability, theft, industrial espionage...you name it."

inancial sector. Pictured here are stockbrokers at work in Singapore

Financial Times. World Business Newspaper.

IT services - Computer companies are offering new-style outsourcing deals, reports Nuala Moran

Users take a tactical view

Cost-reduction remains the primary motive for companies using outsourced IT services

n Fehruary, Electronic Data Systems, the largest computer services company in the world, declined to bid for one of the most lucrative deals going in the UK this year a £50m contract to look after the mainframe computers at

This was a hard decision to make because it would have been a significant chunk of revenue, hut our future is not in this type of facilities management ... it would have sent the wrong signals to our staff and the market," said Chris Stone, director of strategy and marketing at EDS.

Instead. EDS - oow also the largest outsourcing company in the UK - is concentrating its resources on the next wave of IT service provisioo in which the provider belps to manage the client's business. This is seen as the logical progression from outsourcing in which companies buy an from facilities management which involves looking after a company's computers.

The first deals are being struck in this next stage of development which John Tilley, managing director of the Sema Group's outsourcing business describes as "the move from tactical to strategic

view, Net Manager and Net-

view: Lan managers such as

Novell's Netware or Microsoft's

Systems Management Server;

and mainframe and network

The problem with these man-

With Netcool/Omnibus you

agement tools is that they look

can view a vertical slice of the

monitoring systems.

Early examples of what is referred to either as "business process management" or "cosourcing," are Andersen Consulting's contract with BP Exploration to run its accounting systems and do the accounts as well; EDS's deal with the Royal Bank of Scotland to handle all its cheque processing; and ICL's contract with London Underground to improve the transport company's service and business performance.

But, as yet, most companies take the tactical view of facilities management and outsourcting costs. An independent study of ontsourcing in the UK, carried out by the Harris market research group, shows that cost-reduction remains the primary motive for outsourcing Two-thirds of the 216 companies surveyed saw outsourcing as routine, connected solely to a reduction in business costs. At the same time, more and more companies are moving to outsource their IT services. A recent report by market analysts Ovum predicts that the European market will grow to \$17.7bn by 1997. This represents an annual growth rate of 16 per cent.

Mr Bill Lattimer, bead of the UK outsourcing practice at Andersen Consulting, which commissioned the Harris report, says; "Despite this predicted growth, outsourcing in most companies remains

low-key and purely tactical." He argues that rather than just looking to reduce costs. companies should look at out-

your business, not of your sys-

tem," says Mike Silvey, soft-

by complexity, spiralling costs,

and shortages of skilled staff

are outsourcing some, or all, of

their network management.

Some look for part-time net-

work minders, according to

Mike Valiant, managing direc-

tor of the network services

Many organisations, defeated

ware marketing manager.

Network management solutions

Continued from previous page: graphical representation of

company - it gives you a company. Ascom Timeplex -



their business processes. This view builds on the work of C.K.Prahalad and Gary Hamel in The Core Competence of the Corporation, (Harvard Business Review), which advocates that companies should identify and focus on the core activities they do better than anyone else, then outsource everything else to companies that excel in other areas.

"Bringing in an outside supplier to run functions such as accounting and customer-services can improve the quality of overall service and, at the same time, allow senior management to concentrate more effectively on the organisation's core business," says Mr Lattimer.

in these new-style deals. IT suppliers are not just paid for delivering an agreed level of service - "in co-sourcing agreements, we commit to making a significant contribution to the sourcing as a way of improving business - not to reducing the

pletely: a study by Hoskyns.

the computer services com-

pany, found that a quarter of

leading UK organisations

expect to eventually hand-over

network management to third

roads, to introduce and run road tolling and traffic mangement systems in Holland. EDS will be assessed not "we take over at night, or we have agreements to fix a probagainst how well the computer lem if the in-bouse staff have systems works but against not found the solution in 15 objectives such as getting 5 per cent of the traffic off the roads, Other companies are aiming (working within a budget and the existing legislative frameto get rid of the problem com-

IT hill," says Mr Stone. Usually

the cost of IT goes up, but the difference it makes is enor-mous. Rather than cutting 10

to 15 per cent off the FT bill,

companies should think about

using IT to cut the other 93 per

cent of their husiness over-

An example is EDS's deal

with Kooperativa Forbundet, Sweden's largest retailer, in

which EDS not only runs the

computers controlling the sup-

ply chain, it also manages all

the processes in the chain. Pay-

ments are based on reductions

in the time goods spend in the

supply system.
"Because we manage all the

information from point-of-sale

back through to ordering and

restocking. we can reduce the

product cycle time, which is of great economic value to Koop-

erativa Forbundet," explains

n another co-sourcing con-

tract with a US pharmaceu-

Ltical company, EDS - which is owned by General

Motors - is paid for reducing

the lead time in introducing

drugs to market. We don't do

this by belping to discover new

compounds, hut by managing

involved in getting a drug

through the approvals pro-

An extension of this kind of

contract is one in which the

client merely specifies its

objectives and has no involve-

ment in deciding what hard-

ware or software are deployed

to achieve them. EDS has set

up a co-sourcing agreement

with the Dutch Rijks Water

Staat, the public body responsi-

ble for the waterways and

the information flows

This logic has been pushed even further in the contract for the development and operation of the new UK National Insurance Recording Computer system. In this deal, Andersen

Consulting will provide full funding for the project and in return receive payments linked to the volume of business handled by the system. This implies improving the effi-ciency of contribution collection, compliance and recording, and dealing with hig changes to personal pensions legislation due to come into

effect in April 1997. Co-sourcing deals are also leading to the IT service companies managing husiness processes for companies in the same sector. Andersen Consulting now provides accounting services to several oil exploration companies through the centre in Aberdeen which was originally established to bandle the BP Exploration

Meanwhile, EDS is looking for further cheque-processing business to go with its Royal Bank of Scotland contract, and has plans to set up processing centres in Livingston in Scotland, and in Milton Keynes.

According to Mr Tilley, the downside to this is that clients worry about possible loss of competitive advantage. This is why organisations need to be clear about what are core processes and what are not ~ "there is no competitive or strategic advantage in processing your own cheques," points out Mr Stone.

Managing another company's business processes implies that the supplier has a very close relationship with its client. Sema Group has a contract with Racal Defence Systems which has matured from facilities management of mainframe systems to an agreement to provide Racal with the best hardware and software for the next seven years - "you can't contemplate a deal like this unless you understand your client's business," says Mr Tilley

EDS specifies that it must be party to the husiness strategy "co-sourcing can only work where you're genuinely involved in all processes," says Mr Stone. He sees "the level of intimacy involved" as a barrier to the growth of the co-sourc-ing market - "this is a very difficult concept for a board of directors to digest," he says.

UPDATE

New outsourcing deals and services

Siemens plans global project

Siemens is setting up a new plobal operation, Siemens Business Services, to tackle the surge in IT outsourcing business. The UK subsidiary. the first to be set up, will take over the internal IT function of its UK parent company Siemens Nixdorf Information Systems, along with the management of Siemens Plessey's computers.

The UK managing director, Graham Paxton la former IT director at Sainshury, the retail chain) says that Siemens already has a considerable ontsourcing portfolio hut because this is based on local contracts, the company does not have a reputation as a global

outsourcing company. The German arm of SBS, which will begin operations in October, will bring together all Siemens' internal IT. plus a number of external contracts. It will also take over the operation of the company's global private network, which connects more than 60 countries. From day one, SBS Germany will have nearly 2.000 staff and turnover of DM800m.

The new business will focus on vertical markets where Siemens has existing capabilities such as engineering, traffic and transport and hospital

Government contract The first IT contract under the UK government's Private Finance Initiative has been awarded to Andersen Consulting. Under the agreement, Andersen will fund the development of a new National Insurance Recording computer system. known as NIRS2. The company will in return receive payments linked to the volume of husiness handled by the system, which is due to become operational in 1997.

The contract expires in 2004, but it could be extended by up to three years if merited by good performance. At the end of the contract, Andersen will own the



Greham Paxton, managing director of Siemens Business Services in the UK

system. NIRS2 will provide on-line access for 4.500 computer terminals in the Contributions Agency, which administers National

Insurance.
The existing National Insurance computer, NIRS 1, was developed in 1961. It contains over 61m records and processes an average of 500.000 items a day.

British Gas deal British Gas has awarded the outsourcing contract for its regional data centres to Cap Gemini Sogeti's UK subsidiary, Hoskyns. The contract, worth around £55m between now and the end of 1996, will involve the transfer of 1,500 staff.

In response to the opening np of the UK gas market, British Gas is dismantling its regional structure and reforming into five separate business units, Hoskyns will maintain and develop the legacy systems, while systems are developed to support the new business

Services for Adidas Sema Group has won a contract worth £6.25m over two years to manage

computer services for the Adidas. Sema says it will use the data centre, in Herzogenaurach, Bavaria to build its business in southern Germany, and it is already negotiating with other companies in the region.

This is a classic case of transition outsourcing Adidas has done the deal to allow it to focus on a move to a client-server architecture. Twenty Adidas staff will

transfer to Sema Group. Meanwhile in the UK. Sems has taken over the IT operations of Bristol Water, originally outsourced to Hoskyns six years ago. The six-year contract with the company, which supplies water to a million people in and around Bristel, is worth over £5m. :

Mainframe centre Capita Managed Services has won a £7m contract to manage Westland Helicopters' IBM mainframe centre in Yeovil. Somerset. Capita will use the site to develop an IBM business in the West Country and Wales Staff at Capita's current IBM site in Trowbridge will transfer, and existing clients, including Wiltshire Country Council, will be managed from Yeovil. The five-year contract includes a royalty arrangement under which Westland will receive a proportion of any revenue earned by Capita from new business it attracts to Yeovil.

Network management The UK's Department of Transport has outsourced the management and supply of its data network to Mercury Communications in a three-year contract worth £530.000 a year. Nineteen sites around the UK will be directly connected; seven others will have dial up connections. This will link together a growing number of local area networks, allowing the DoT to run applications such as electronic mail across the country.

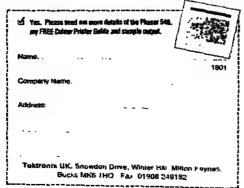


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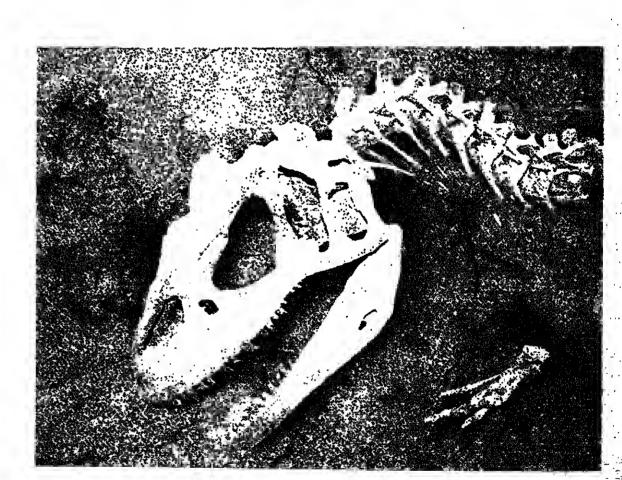
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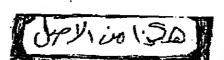
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software at work

E GAD: Computer Aided Design, computerised drawing done at workstations, largely in the design, architecture and engineering industries.

IR CAM: Computer Aided Manufacturing, seemless automation of design and. production:

EDA: Electronic Design

CAE Computer Aided

AEC: Architecture Engineering Construction.

Applying the technology ...

Computer aided design

Saving time and money

Integrated software and virtual reality are poised to revolutionise the way construction companies design and test projects. But the transition will not be painless, says Claire Gooding

t the international engi-neering contractor, John Brown, design work is developed across three conti-nents. The UK team, then the American, then the Asian, take turns to move projects forward, thanks to the co-ordination of design, drawing and project management made possible by workflow techniques

John Brown's actomated industry, the use of Cad is drawing package, Antoflow, based on Autodesk's computeraided design software, Auto-CAD, not only reduces the time taken to produce piping diagrams, but also substantially improves quality and saves clients money. (Research has shown that differences in specification levels and in the use of standard components mean that raising a building in, for example, London's Heathrow. can cost 32 per cent more than it would in North Carolina.) Sir Michael Latham's report

niques pioneered by, and for, the construction industry have been put to work elsewhere. Among sectors using Computer Aided Design (Cad) and project management are the automotive and aircraft indus-But in the construction

somewhat limited. It remains an island of technology - a preserve of the architect's office that does not feed through to other disciplines in the sector. According to the international IT industry analyst, Dataquest, the Cad market is booming in Germany hut flat in the UK. Dataquest's recent report* puts the worth of the Cad/Cam/CAE/GIS market in Europe at a third of the world's total at \$5.4bn. Cam-bashi, the Cambridge-based process industry analyst, estimates an end-user spend of £450m on Cad/Cam/CAE tools in the UK alone, and a further

possible by the year 2000, and many of the computer tech-mation Systems (GIS). Ms Petra Gartzen, a Dataquest specialist in Cad, points

to the European Process Indus-tries Manufacturing Advantage (Prima) project as an attempt to exploit the potential of Cad in a broader context. Business process re-engineering comes into the picture because people realise that in

adopting these technologies, they have to adapt their processes. Design processes have not changed for more than 70 years in many companies," she

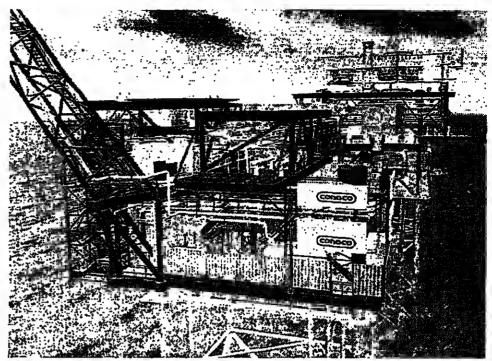
ataquest's survey of users discovered disap-pointment in the ability of Cad systems to improve time-to-market, but the fault lies in the lack of integration between design and engineering departments, not in Cad, says Ms Gartzen. She suggests that the CAD demands a change in attitude: a more thorough and co-operative

approach at the conception stage, and willingness to make basic design changes.

The wide availability of document management systems (DMS) and GIS offers the chance for Cad to be an integral part of the development process. Virtual reality and simulation techniques make it possible to "walk through" and test a drawing, before it goes to production. In this ideal world, designers and sub-contractors communicate easily throughout every stage, including

In practice, exchange of information between CAD tools is usually possible but often tricky, and a seamless flow between Cad and project management software rarely

Some companies are trying to add finances into the picture, costing the components in the Cad drawing and modelling the financial implications of delays in the project man-



software on a Sificon Graphics super computer. The system allows engine components in a virtual world, say technologists at Cambridge-based CADCentre

Westhury Homes, the estate developer, (see report, page 12) had to write its own system to achieve an integrated approach since, according to Mr Neil Allen, a director, there was lit-There are islands of information," he says "but nothing to give the broad picture."

Mr David Jones, IT director of the Laing Group, a leading construction company, laments the fact that the courage - and government incentive - needed to "re-engineer" his industry and take advantage of imaging and workflow techniques are

"Cad demands a complete mindset approach," he says. "I believe we have to address design in the same way as process engineering: a huilding ought to be modelled in 3D, and simulation is vital.

"A client could virtually ensure delivery on schedule by insisting that every company in the process contributes to the preliminary design model, so that the complete model can be analysed, and any potential changes validated.

"But this is a risky investment for individual construction companies, and only coe client - the government - is really hig enough to make it happen. The UK has to take the initiative bere: the US and Japan are only a little way

It is possible that the world's largest software bouse, Microsoft, is setting in motion a change that will make such harmony easier to achieve. OLE 2 (the Object Linking Environment) is Microsoft's proposal for a common route to exchanging and managing data from all sorts of sources spreadsheets, bit-map graphics, text - hut also 3D objects, such as a 3D models, and vector graphics

Yesterday, international industry analysts from the 100strong group, CATN (Competitive Advantage Through Networking), met to discuss OLE and the issue of interoperability in Cad/cam and GIS.

r Mike Evans, founder of CATN and A a consultant at Cambashi, believes that Microsoft's initiative is important, even though some might view it as muscling in to change the rules in an established market. "Cad is a huge success, with

proven productivity gains. Users are now seeking the 'value added' feature of interoperability so that the 50 or 60 specialist disciplines involved in one small project can be properly integrated," he says. Microsoft's initiative offers a potential standard mechanism to move the data from step to step - "a sort of integrated workflow from conception to design. Cad, project management and document management are all coming together.'

Several independent Cad vendors support the OLE initiative, including its originator, Intergraph, Bentley Systems, and Autodesk, the Cad supplier with 70 per cent of the market.

"People are beginning to realise the investment they have made in their drawing files," says Mr Jeff Drust, managing director of Autodesk in the UK. "We have to interface with enterprise-wide systems such as those for document management, and increase people's ability to find existing files and re-use them. Revision control gives you a layer of management that enables simultaneous working - as at John Brown

"The promise of Cad is to complete the design process, test, cost and validate it without ever spending money on a prototype. We make our mistakes on the computer rather than on-site - it's a lot cheaper."

*Dataquest Europe Perspective: Tel 00 44 1494 422722 CATN. c/o Cambashi, 00 44 1223 460439

Complex task for a new German telecom network

on procurement for the UK

government emphasises that a 30 per cent saving should be

ermany's population of 85m represents the most lucrative untapped market in Europe for cellu-lar communications. Recent surveys suggest that only 2.5m people use cellular phones, which leaves the door wide open for E-Plus, the new German contender in this market. In setting up its network.

E-Plus faces an extremely complex task - not least because it is starting from scratch. It has none of the infrastructure of the three established suppliers, which operate on the existing D-network, writes Claire Good-

The first step is to find out what has to be built first, and looking beyond conventional Computer Aided Design (Cad) tools to the extra dimension literally an aerial one - provided by a Geographical Information System (GIS).

The ownership of the Dusseldorf-based E-Plus is shared between a group of multinational companies. Among them are the German companies, Thyssen (28.4 per cent) and Veba (28.4 per cent), the US company, Bell South (21.4 per cent), and the British network operator, Vodafone (16 per

E-Plus, which won the gov-ernment licence in 1993, plans to create a DCS1800 personal communications network that can support low-power 1-watt hand-held telephones across

Michael Schnepf, specialist in net information systems at E-Plus, explains the technological problems: "We couldn't have used AutoCad or something similar because Cad tools just cannot marry the geographic and technical information. We needed multiple 'lay-ers' of information about each area, such as population density, and so on, and a database that would provide different views and analyses - showing for example, all cities above a certain population size."

E-Plus also needed a system with huge capacity - "an enor-mous amount of data volume is needed to map the entire country in digitised sectors," Mr Schnepf continues.

Because we are looking at the



The E-Plus personal communications network has been designed exclusively for low-power 1-watt hand-held telephones

height of the land and other factors we need lots of overlays - height of land, size of population, land usage, and so on. One layer is nearly 1 gigahyte: that is a lot of data when you consider the scale of the task." It quickly became clear that

to co-ordinate all the technical,

geographic and geometric information, E-Plus would need a GIS that was able to create maps using locational data, combined with statistical and text and numeric data. Of eight products originally evalu

Cootinned on next page



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ORACLE Enabling the Information Age

The creative use of data

Continued from previous page

ated, only three survived to the shortlist and were deemed to match E-Plus's requirements for state-of-the-art programming techniques tohject-oriented) and ease of use. E-Plus chose Smallworld, a

comparatively new but modern UK company, whose product was launched in 1991. Other products, although capable of handling raster data, adapted poorly to coping with information over the Wide Area Network (Wan) connecting E-Plus's nine regional offices. In Smallworld's aoftware, high-speed database cache facilities made this kind of reach much more practical.

Another factor in Smallworld's favour was its interactivity, which made it easy to learn. "The Smallworld GIS is a young product, so it was difficult to compare its functions against other users: only three or four major companies used it at the time of the decision, says Mr Schnepf. "But with

applications in a matter of hours: once you have learned the object-oriented way of thinking, then it's easy to exploit its facilities."

Local support, supplied from a Dusseldorf office, was a reassuring plus-point, but what clinched the deal was Smallworld's open approach to hardware platforms.

The system's ability to run

on Sun, HP and DEC computars, (already installed at E-Plus) as well as on IBM and others, was an advantage to a company that used so many different planning tools on so many different computers.

With the SmallWorld product, E-Plus can perform an analysis on each layer of data, seeing how many people each antenna will serve, and which have to be built first.

There are currently 1,700 base stations in place, and the number is expected to rise to 5,000-6,000, covering 98 per cent of Germany, by 1996. A separate Oracle 7 database stores all technical and administra-Smallworld you can make little tive data for network elements

such as base stations and connectors. The link hetween Smallworld and Oracle enables E-Plus analysts to access information on the GIS seamlessly. so that the position of the antennae can be displayed along with transmitter sites, power transmissions and signal directions, clearly showing which areas are covered. The GIS also provides some operational and status information. for subsequent use in Microsoft's Project Manager software

tools. Smallworld's most creative business idea so far is regional charging, which, if exploited, would be unique to E-Plus in Germany, and give the new-comer a useful competitive

and other project management

It has further potential for building analytical applications, such as those showing demographic information with highways and signal strengths. Smallworld applications are also being used to design services for the automatic routeing of emergency calls.

■ Computer aided design — New software systems help to preserve the past, reports Claire Gooding

Master plans for historic buildings

How computers help recreate architectural blueprints of 500-year-old buildings

hen a basement was flooded in 1984. King's College Cam-hridge lost what few architetural plans it possessed. Restoration was a job for specialists and the Cambridge-based company, Annand and Mustoe Architects (AMA), was called

The architects' brief was to recreate internal records and floorplans that dated back to the college's foundation in 1441. (The famous Kings College Chapel was built between 1446 and 1515 and the Gibbs building, another well-known picture postcard subject, was constructed between 1724 and

Recreation was essential if

the Domus Bursar at Kings (responsible for the care of the college fabric), was to have a "master plan" against which to plot routine maintenance work. For Mr Duncan Annand, partner at AMA, it was the first experience of Computer Aided Design (Cad) techniques. When we first started the project nine years ago, we per-suaded the college to let us do it on computer with the software product, AutoCAD," he recalls. "Unfortunately, as we did more of the survey, and the floor plans became larger, drawing re-generation took longer and the larger drawings could take several minutes to re-generate."

The architects then discovered FastCAD, a speedier solution available from a US company of the same name and written by the author of Auto-CAD - "we had so many suggestions for improvements that we re-wrote the software with extensions for architects and engineers," Mr Annand adds.



The entrance to King's College, Cambridge, founded in 1441

"The survey has grown and grown - we've done seven-eighths of the college, although we haven't yet done the cha-pel. The whole idea is to make maintenance easier, but there's another long-term possibility the technique opens up - that of putting maintenance on to a

facilities management package, a sort of computerised maintenance manual."

AMA asks other specialist companies to create the external elevations, using photogrammetry to convert pictures to two-dimensional plans.

The fires at Windsor Castle and York Minster - which had no architectural records demonstrate how valuable such archives can be in the case of disaster. Professor Ian Harley of the

Photogrammetry and Surveying Department at University College London is working on a photogrammetry project for Henry VII's chapel in Westminster Abbey.

"Many huildings across Europe have been restored with the help of archived photographs, and architectural photogrammetry has been in routine use in Europe for some tima," Mr Harley says.
"Although the chapel has
stood there for 500 years, noone has ever completely under-

THE RESERVE OF THE LAND TO A STORY SELECTION OF THE PROPERTY O

ceiling is constructed. Computerised drawings can help."

Mr Nigel Lacey, domestic hursar at the college, finds the plans - which show phone, power and computer points as well as the historical details and can be printed-out at any size – as valuable for future planning as they are for restoration or building alterations.

"Wa have a particular concern for fire safety, fire alarms, re-wiring and communications. especially as we plan to extend the computer network into student rooms," Mr Lacey says. "Wa now have everything on disc, plus full-size drawings and smaller ones that are ideal for taking to meetings it makes life so much easier.

"We're looking forward to using space as strategically in the next 20 years, and these drawings, so easy to update, are essential to making sure that we don't do ad-hoc alterations in the interim."

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Replect management with IT

A mix and match approach

A plethora of packages is available to the project manager, but satisfaction is not guaranteed

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anaging most pro-jects calls for a mix of skills, resources and disciplines. Yet project management, as a sub-stratum of data management, tends to be pushed into a corner, writes

In many companies, the schedule kept inside someone's head, or a wall-chart, with moveable strips and added scribbles, is deemed an edequate planning tool - no need for fancy computerised Gantt charts.

Yet a wealth of software packages exists, from Microsoft's Project Manager and the Project Management Software Centre's £99 Project Commander, to the long-estab-lished names such as Cascade from Mantix Systems, Artemis from Lucas Management Systems (currently in acquisition negotiations with EDS) and Welcom Software Technology's Open Plan.

The 1995 report* on project nanagement from Cambridge Market Intelligence lists 25 suppliers and dozens more packages, Most are used internationally, and many companies take a "mix and match" approach, selecting packages for their individual strengths. IT specialists themselves have failed to get to grips with projdespite the fact that bespoke tools such as PMW, now sold by London-based ABTI, have een around for years. The new generation of proj-

as CADCentra's PDMS and Asta's PowerProject – tends to be more flexible than its predecessors. There are also sundry specialist tools such as the Predict! software from the Oxford-based Risk Decistons, which tests the risk element in models and schedules, and makes "what if" assess

of liabilities Despite this, Mr Mike Evans, director of Cambashi, the process industry analysts, says that satisfaction with project management packages is "fairly low". This, perhaps, reflects the increased importance companies attach to the discipline: packages that do not perform cannot be toler-

Mr Evans continues: "Project management is seen as a sub-stratum of data manage meut, which is the entry-point for many businesses. Controlling the process is as important as controlling the data management. This is big business, as is demonstrated by Computervision's deal with Rolls Royce for total product data management (PDM). It's indicative of how people have woken up to its importance."

Mr Ken Lane, editor of Project Manager Today, points to the failure-rate of IT projects -"there have been a lot of unsuccessful projects, some publicised, some secret," he

His magazine plans to air the problems this September in a two-day conference on the subject of good management through IT, jointly sponsored by the British Computer Society and ABTI.

*Management Report 1995, bu Cambridge Market Intelligence. Tel: +(44) 0171 924 7117 Project Manager Today, tel:

underpins all the applications,

and represents a software

investment of Cam. It is this effort that has ensured that Westhury has integrated systems from design through

"We've developed our own methodology for using Cad, That might sound grand, but

in practice we have set certain

ground rules, for example, everything is in 3D," says Mr Allen. "As a result, we've been able to develop software that

links our Cad systems with the

commercial systems: operational systems such as laud-huying, production planning, estimating and costing.

"We look at each project sep-

arately, with systems written in-house around planning and estimating activities to provide

the project management infor-

mation. We occasionally 'drop

into' Microsoft Project, but find we need more detail than it

ach estate is planned down to fine detail, so that a hreakdown of components – right down to the number of joist bolts or

gallons of paint - provides an accurate costing, and tight con-

trols during construction.

Omnis can also use this data to

calculate whether a new site is

worth development, based on local house-prices. Mr Allen

believes the software has given Westbury a real advantage in a

depressed housing market

construction industry in find-

ing that few packages give it

the hird's eye view that it

needs, halancing financial

information with operational

expensive to hold in stock. The

levels of work in progress ver-

"We are mindful of the fact that house-building is a very

where cost-control is vital. Westbury is not alone in the

can supply.

to production.

... Integrated project design

It pays to fine detail

Software for design known in-house as Omnis, and management gives a leading building company clear cost advantages

ntegrated systems are seen as essential for Westbury Homes, one of the top ten estates developers in the UK, writes Claire Gooding.

"Essentially, when we're talking about project manage-ment, we mean managing the entira business," saya Neil Allen, director of IT at Westbury Homes. With headquar-ters in Cheltenbam, the company builds housing estates in many parts of the south of England and South Wales.

Our systems touch virtually all areas of our business and we use them as controls. Just as the husinesses are integrated, so the information should be, too," adds Mr Allen. Westbury runs a network of eight HP9000/G30s, and 40

workstations for Computer Aided Design (Cad) work. These are distributed around the head office in Cheltenham, with wide area network (Wan) links to regional offices in Northampton, Kidderminster, Cardiff, Gloucester and Bristol. There are around 130 networked PCs across the group,

and a few dumb terminals. For its Cad work, Westbury uses the specialist Gable archi-

tectural package.
Originally developed at Sheffield University, this uses terminology and mathodology appropriate to architecture. Ground engineering staff uses the industry de facto standard Moss 3D package - often used in highway design - from the company of the same name.

Not averse to adopting stancapital-intensive business: completed, unsold houses are dard packages where appropri-ate, Westbury decided that it was important for in-house systems to be fully integrated, to the degree that it should develop them itself, using a fourth generation language for speed and ease of maintenance

- "on our PCs we have standardised on Smartsuite and Wordperfect, but all our core systems were in-house devaloped, using Cognos Power-House, and its interrogation tools Impromptu and Power-Play," explains Mr Allen.

This all-embracing core,

sus sales rates are what concern us, and the normal project planning packages just don't reflect thet. "We find that our in-house systems are much more appli-

cable to the way we control the business," concludes Mr Allen. agement and Cad will appear

in the September issue of the

■ Project control - an application in the construction industry - report by Claire Gooding

Planners take a pragmatic view

How Laing, the UK construction group, integrates operations and data across seven divisions

any car drivers in the UK want to see the M25 motorway widening at Reigate completed on time. The same goes for the Second Severn Crossing and the construction of Ashford International Station.

Laing, the construction group, responsible for all these projects, has its pick of software tools for project management. It works on a vast range of jobs and its policy is to allow a wide selection of tools Compatibility, of course, is

One of the rules is that all software products have to run under the Unix operating system, and all network products have to work under Noveli's Netware 4 - they're de facto industry standards, so that is not much of a constraint." explains Mr David R Jones, IT

Laing's seven operating divi-sions have agreed to limit the choice of any software package to four potential suppliers per application area. This helps ensure that training, maintenance and internal knowledge remain manageable.

"Our role is to co-ordinate: if there's a majority opinion, a new 'best of breed' might

replace a current one," he says. "It works well, as a flexible discipline, when people wish to try out something new. Users quite rightly only want the productivity, while we have to be aware of support costs."

In the area of project control, it is vital that products inter-

face with one another, but according to Mr Jones, total integration is not essential. Files have tu be passed etween the package and, for example, procurement software, because we have to know when an item of supply is going to be late -it may affect contract work. Within an integrated system, the update has to be real-time, instantaneous: we're saying that, effectively, a twice-a-day update allows us enough flexibility." Only three project manage-

use at Laing: Power Scheduler from Advanced Management Solutions, Hornet from Clare mont, and Openplan from the company of the same name. "Certain planners have decided preferences, based on experience or the type of proj-

ment packages are currently in

ect involved, but all three cover the same ground," says Mr Jones "The end-users must



software that is right for them, but ideally we'd like our planners to be familiar with all three planning systems."
Mr Ted Kelly, divisional

planning manager of Laing's civil engineering division, is using Schedule Publisher for project control on the Severn Crossing. The choice came about initially through a word-of-month recommenda-

"We had been running other planning tools - Claremont Control's Hornet and Asta's PowerProject, and Primavera,

internationally. In the course of tendering for work for Scot-tish Nuclear, we found that it specified Artemis 7000 for project management, but we were unwilling to spend a great deal to comply with this. The managers on the Scottish Nuclear project suggested that Sched-ule Publisher, with its facility to write to Artemis, would be an alternative," Mr Kelly explains. "Since then the package has won a following, and is now used in Laing Civil Engineering, Laing Management, John Laing International and also our industrial engineering

The Second Severn Crossing. currently one of the largest construction projects in the UK, is sub-contracted to the joint venture between Laing and the French construction company, GTM. The four-year project, worth in excess of £300m, took two years to prepare, including the design work and getting the necessary hill through parliament. Construction started in 1992, and is due to finish in April

Like many other construction companies. Laing is looking hard at the need to

certainly needs to be done hetween design and project management. There should be no barriers to this, but it rarely happens, and a conscious effort has to he made," says Mr

Kelly.
The company is becoming proficient in a project management system called Johnaster, which allows total integration. It is currently used for estimating, but can help control projects from conception to complation. The system, from Construction Computing of Matlock, can deal with scanned images, documents, procurement, estimating, scheduling, and quantity surveying. "After 18 months of experimenting, we are preparing to take it out on-site as a project manage-ment tool," says Mr Kelly. Detailed project planning,

however, is done in Schedule eral levels of detail.

"On level one we have the overall project schedule, done at the outset and updated once explains Mr Kelly. "Level two is short term look-ahead between three and six months - and is updated every few rolling schedule produces detailed two-week planning. "We discovered its potential

on a small road re-construction joh on the A40 in Wales. It was used for the production of 'as huilt' records of the project to do comparisons of what we did and what we thought we were going to do. It is very useful to measure changes, and give a clear concise view of what has taken place, because you can superimpose more of paper and see where the differences are. It also keeps a record of each activity and keeps track of plans and variances, along with what actu-ally went on: a useful facility we nevar had before."

A dozen or so people mainly planning engineers who move from project to project and have portable computers - use the package.

"It's very simple to export text files, into 1-2-3 or Excel if you want to prodoce smart graphs and presentations," he says. "But the real potential is the analysis of sub-contractors' performance, which we're try-ing out at the Ashford project: this is a big area for the future. The idea is to produce a value

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Hand-held computers give greater accuracy in collecting economic data

Hand-held computers have replaced cliphoards and pens as the collation method for the Retail Price index, the UK's monthly measure of shop prices. This crucial economic data is now collected by 400 researchers armed with Psion Series 3a computers pro-grammed for RPI data. The switch to IT came as the RPI market research was contracted out from central government to a private contractor, Research International. David Cahn, vice chairman

of Research International, explains that the Psion equipment has eliminated a previous margin of error. Information collected under pressure and recorded by pen and paper inevitably contained some false

figures.
"We are driving out mistakes at the collection point. These systems contain the figures for the last month's shop prices and are programmed to check for acceptable ranges in the data," he says.

So a slip of the finger on the keyboard will register with the software as a suspect price hike. Data collected in the field is fed back to Research Inter-

national by modem.
Psion developed the RPI
application and sold £400.000 worth of Series 3a machines, accessories and support to Research International. The Series Sa retails at £99 and runs off conventional batteries. These give an effective life of around 50 hours before replacement, ten times the endurance of most portable computers. Michael Dempsey

Music by fax

Information technology is making a new contribution to the arts with the launch of what is claimed to be the world's first dial-up music service. By keying a few digits into a

standard fax machine, musicians can select a song from a digital repertoire of thousands

of popular and classical scores and then receive them as a print-out. The London-hased Music hy Fax' service has been developed by the Music Sales Group as a way of increasing interest in tradi-tional sheet music.

The group aims to have 2,000 catalogued titles available by the end of this year. The system has a capacity for more than 100,000 songs of interest to a wide audience, ranging from professional musicians to teachers and users of church

A popular song of average length, such as Mull of Kintyre. costs around £5, or around £1.50 a page to fax. Payment is through a new BT service which is charged at £1.50 a minute. The freephone helpline for the service is 0800-212 891. - Michael Wiltshire

Western computer suppliers lag behind in Russia

Western computer suppliers bave a long way to go to dominate the personal computer market in Russia and Central Europe. The IT research group. Dataquest, reports that less

than 25 per cent of PCs shipped there in 1993 came from West ern vendors. IBM had only 5.6 cent of the Russian market. well behind the local vendor Land with 19.3 per cent.

During 1994, Land suffered from quality problems, but another Russian company, IVK rose in prominence. Poland's Optimus claims 35 per cent of its local PC market share.

Dataquest analyst Natalie Spitz says western companies are still deterred by political instability in the region, but points out that the export market there offers "huge opportu-

Of 40m PCs shipped world-wide in 1993, only 1 per cent went to Russia. A parallel Dataquest survey reveals a hurgeoning market for cellular communications in eastern Europe, with sales of 65,000 cellular phones in 1993 due rise rapidly to 2.26m by 1998.

- Michael Dempsey

Extending the boundaries of knowledge

Desktop videoconferencing is proving a hoon at the University of Ulster in Northern Ireland. The system is being used to extend business enterprises throughout the province, and for remote lectures



Text and technical drawings can be transmitted with BT's VC7000 desktop videoconferencing units - see report, this page

and contact with overseas col-

leagues.
Dr Gerard Parr, the university's director of telecommunications, says the equipment -BT's PC Videophone and VC7000 desktop videoconferencing units "allows greater com-munication within the province and indeed the rest of Europe and beyond."

For students and tutors, attending lectures need no longer involve time-consuming or costly journeys, as the system links users "live" to lecture theatres, based at the university's four campuses.

BT, along with its partners IBM, ICL and Olivetti, has now granted the distribution rights to market the PC Videophone in 19 countries. The equipment is intended for a wide range of business processes.

Meanwhile, the VC7000 videoconference units. which can also transmit text and drawings, are being used in a growing range of industries as multimedia workstations - an aircraft industry application, for example, is pictured above, - Michael Willishira

A journey into the future

three-dimensional video China. AST has 21.4 per cent of the market. nise hody language and ges-tures, and electronic mail that talks to you over a mobile tele-- all within the next 25

A key element in making these developments possible will be an increase in computer power, which could be a million times greater than today's levels, if the pare of develop-ment in the last 25 years is maintained, says the study.

These predictions are part of a comprehensive futurology research project, led by Profes sor Peter Cochrane, head of BT Lahoratories' Advanced Application Division at Martlesham.

Using a combination of projection, extrapolation and informed "guessology", the team has compiled 200 predic-tions of technology and society. Prof Cochrane comments: "We have to thank the 'space race' and the cold war for promoting the birth of integrated circuit technology. For exam ple, there are now wrist watches that yield more com-puting ability than some 1970s mainframe computers. Ordinary cars today have more 'intelligence' than the original lunar lander.

Among the team's predictions is videoconferencing systems that will create the impression of 'virtual presence', being three-dimensional and life-sized - "we will probahly have also discovered a new mechanism for communication, other than radio, electronic and optical transmis-

- Michael Willshire

A plan to automate the Pontifical Libraries and help preserve its rare hook collections is under way, following a strategic alliance between the Xerox Corporation and Ernst & Young, to assist the Gregorian University in Rome.

Plans to preserve

historic documents

Following meetings in New York and Rome, a team of experts is exploring the use of oocument image technology which will not only preserve rare collections but make them available to scholars world wide. Using Xerox "documents on demano" equipment, it would he possible to rescue rare hooks from the decay of age and reprint them at any time or location. It would also allow on-line access to hooks from around the world, via the internet.

- Michael Wiltshire

Top PC seller in China

For the second consecutive year, computer market analysts at Dataquest have named AST, the computer company. the top personal computer vendor in China. Among foreign new study foresees and domestic PC suppliers in

> To localise its products. AST has worked with the leading Chinese software developer. SunTendy, to bundle its utility program, 'Chinese Star', with AST systems to provide enhanced Chinese language capabilities on PCs.

AST entered the Chinese market in 1988 and now has a sales network of 10 main distributors and 150 PC dealers supporting 2,000 resellers across China.

- Michael Wittshire

Electronic wallets

An imagined world of 'digital cash'

Mobile computing requires miniaturisation and there is a natural physical limit to how small a computer can be made. After all, a keyboard must be large enough to be comfortable and a screen cannot get too small without becoming unreadable.

But if users dispense with the keyboard, and if they do not need a large display area, mobile computers could one day become electronic wallets. They could store "digital cash." display pictures of family members, carry digital huslness cards - all the things that people bave in their regular wallets, urites Tom Foremski.

These wallet PCs might seem fanciful and even slightly ridiculous, but they are a goal of US and European researchers and they could become a realistic option by the end of this decade.

One of the most vocal supporters of the wallet PC idea is Microsoft chairman Bill Gates. At the Comdex/Fall computer show last year, he introduced a film depicting Microsoft's view of the future, specifically how people will be using new tech-nologies in Microsoft's home town of Seattle, ten years from

The most striking aspect of this imagined world was that there was no cash, at least not in the familiar physical sense. Purchases were made using small, wallet PCs that used wireless infra-red links to make and receive payments. Paying for a cup of coffee from a street vendor was as simple as pointing the wallet PC as if

it were a remote control for a television set and pushing a hutton. A mother was shown giving her son his weekly pocket money hy making a wireless transfer from her wal-

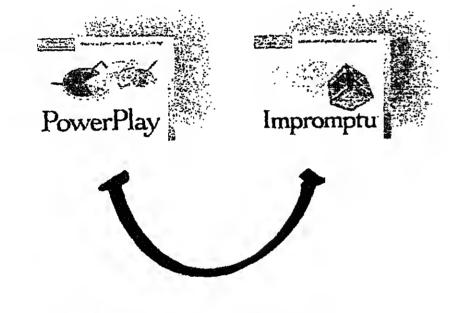
let PC to his.
With Gates a keen advocate for wallet PCs and with Microsoft's enormous influence on the IT industry, a technology direction has been set that is certain to attract other companies. After all, there is a potential market of hundreds of mil-lions of customers in the US alone, not to mention the hillions of people worldwide yearning for their own elec-

tronic wallets. Microsoft is not alone in exploring the idea for wallet PCs. The European Union's Esprit research program has a project called Cafe (Conditional Access for Europe) which is working on design and secu-rity issues related to creating an electronic wallet. The Cafe wailet will also use infrared technology for wireless payments and prototypes are being prepared for trials later this year.

To prevent others from stealing digital cash transmissions, Cafe is using public key cryp tography technology which makes each payment specific to the recipient. The results of several other Esprit research projects will eventually be included in the Cafe project. These include Cascade (Chip Architecture for Smart Card to your home. The same could happen with watching TV the capability to instantly buy anything you hear or see



by Fax' service - see report, this page



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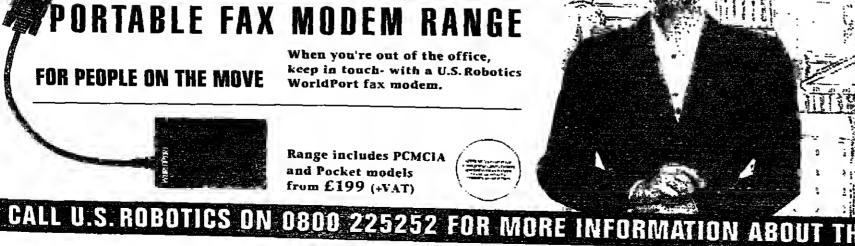
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fter a long introductory period, there are signs that, at last, multimedia technology is starting to have

an impact. But as with the early use of personal computers a decade ago, the home consumer market is where the early action is. A Touch Ross

survey year, for example,

noted last year that, while corporate interest in multimedia

technology is high, only a third of companies are likely to use it in the short term.

By contrast, a survey of the

European consumer market by

researcher Inteco suggests that

the demand for multimedia is

taking off. The market will dif-

fer from country to country.

however - "the potential mul-

timedia markets are frag-

mented and households are not.

all moving in the same direc-tion or with the same speed,"

notes Mr Miles Thistlethwaite

in Inteco's report, Multimedia

the way - partly because of

de-regulation of the telecom

industries and also because of

the high penetration of CD-Rom as a storage medium

on home PCs. Inteco estimates

that the installed base of

CD-Rom drives in UK homes

will reach 2m this year and 7m

media PC beginning to emerge.

People are buying CD-Rom and

soundcards to add to their

"There is a standard multi-

The UK is expected to lead

in the Home



directions

Militainedis technology prints together Mil motion video, sound, autmation, still images id text on a persona omputer or vorkstation.

As the multimedia market grows, it will begin to merge with one side and television on the other.

Here, and on the following four pages, FT. correspondents examine the latest advances in " the technology and its potential markets. Case studies of new business applications appear on pages 16 and 17

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Multimedia - applications such as home shopping and TV-related services are likely to be boosting the European consumer market

Home consumer market is leading the way

By the end of the decade, multimedia facilities are likely to be as common as full colour graphics on today's personal computers, writes Philip Manchester

PCs," says Mr Barry Thurston, managing director of Scala UK, a specialist in computer-based television systems. He adds that the consumer market in the US is being helped by the existing satellite and cable television infrastructure - "cable is lagging behind satellite hy about six months in the US, he says. "It's going to take longer in Europe because of the different infrastructure. But I think we will see something

happening by 1997." Mr Thurston sees epplica-tions like home shopping and television-related services boosting the acceptance in the consumer market. Other manufacturers agree: "There is cer-tainly a lot more acceptance of multimedia across the board. But the consumer market is looking very good," comments Mr Kanwal Sharma, new media marketing manager at Apple UK.

"Parents are huying it for their kids as an educational tool - but also for games and

Mr Toon Bouten, European director of Compaq's consumer group also sees fast growth in the home market: "Europe is slower than the US because of language and cultural differences. But in the key markets - UK, France and Germany we are seeing 20 to 30 per cent amual growth."

entertainment," he adds.

He sees the home market split into three sectors: 50 per cent for home business applications, 30 per cent for education and 20 per cent for entertain-ment - "the growth in each country will depend on the availability of local products on CD-Rom. But also the availehility of networked services, such as European On Line, will help to push it. I think there are many small pushes which will add up to a big push to

multimedia," he says.

While the consumer market will lead the way, there are signs that corporate use of multimedia will follow quickly. Mr Sharma of Apple likens it

to the desktop publishing market a decade ago when pioneers saw the potential of a new technology - "companies are starting to use it in pilot projects for things like point-ofsale and point-of-information applications. But they are also using it for presentations to put across sales messages," he

they are doing it."
Mr Neil Davison, European marketing manager at Videologic divides the potential husiness market for multimedia technology into five areas: training, point-of-information kiosks, videoconferencing,

says. "This will create whole

new industries geared to huild-

ing the content for multimedia

applications. A year ago they

were talking about it - now

husiness TV and presentations. "An established market like computer-based training is an ideal starting point for many companies," he explains. "Multimedia technology adds a new dimension to training for many companies. They can package

up training courses for individ-uals which can be downloaded from e central server to provide just-in-time training for new products "

This, he adds, will enable companies to cut training costs hy providing quality instruc-tions for staff without sending them away on expensive residential courses - "training can be delivered to the desktop when it is needed at much

ultimedia presentation is also an auractive area for business, tion is also an attracaccording to Mr Davison: "Companies are already distributing annual reports on CD-ROM. They can put a video of an interview with the chairman, show off new manufacturing facilities and so on."

He sees the five main areas of the market developing at different rates, however - "it's not an homogeneous market because different companies want different things. We see,



Technical trials for e new interactive muttimedia service: British Tek is researching ways to to being together the telephone and the television set to enable customers at home to chose and order entertainment and information services from a 'menu' on on an ordinary television set.

for example, a hig demand for training in financial services companies. They are also interested in point-of-information kiosks".

He also sees manufacturers such as the Rover Group using the multimedia technology at the point-of-sale for innovations in marketing. The key to corporate use of multimedia is its inclusion in the hroader corporate information technology strategy, according to Mr Davi-

"There is growing evidence that information systems departments are starting to take notice. They are specifying corporate PC purchases in a way that makes them 'multimedia-ready'. Multimedia needs to be looked at in terms

greater efficiency. But multimedia technology is still either crude or expensive: full screen, full motion video, for example, is not viable on anything less than a high specification PC with e lots of memory and large stor-

age resources.

Typically, a ten-second video sequence consumes about 60 megabytes of hard disk storage and needs a fast processor such as a Pentium or a PowerPC to replay it at a reason able size. Yet there are signs that multimedia is reaching a level of meturity which will make it attractive both to the home consumer and husiness By the end of the decade, it is likely to be as common as full colour graphics on a PC is

New multimedia standards.

Big benefits for all

Unlike earlier technologies, standards in multimedia are evolving fast to the advantage of the industry and its customers, writes Martin Banks

Standards are as impor-tant to the success of multimedia as they are to any other technological development. The hroad range of multimedia technology needs many different standards from network communications and storage to video and audio data compression.

At the communications level, the demand is for 'bandwidth'. The greater the bandwidth, the faster data can be transmitted. This is particularly important must not be interrupted during transmission over a network. Integrated Services Digital Networking (ISDN) communi-

cations is emerging as a leading standard for multimedia.
"ISDN is now the entry level for video and audio data," says Mr Richard Johnson, managing director of Signpost which operates the Multimedia Busi-

ness Library. Most large organisations have ISDN to their switchboards now and once its up and running, it's so cheap. You can, for example, use a remote video server at the same speed as a hard disk," he goes on.

The main advantage of ISDN is its ability to use up to 30 channels as a single communications link. If only small amounts of data are transmitted, a single channel can be used. But if more bandwidth is needed - such as in video transmission - more channels can be dedicated temporarily to the task.

Asynchronoue Transfer Mode (ATM) communications is another key standard which promises to increase handwidth across the hoard. In ddition to speeding up communications in natworks, it will, in the long term, speed up local area network (Lan) traffic and bring higher bandwidth to the desktop - see report on page six of this Review.

Unfortunately, ATM communications require new adapter which makes the technology prohibitively expensive in the short term.

"ATM is a great technology - but you have to change a lot of things and this will elow down its acceptance," comments Mr Philippe Brawerman, president of Cisco Europe, which specialises in multime-

dia networking He sees the short-term solution in using a combination of ISDN and improvements to

current Lan technology Europe is fortunate with ISDN which is adequate for as multiple live video windows most current applications. If yon use this with improved Ethernet Lans which can give you more bandwidth to the desktop, you can meet most needs," he adds.

Data compression standards are another key area. They cut down the amount of data which has to be transmitted over the network and reduce

storage requirements. The two main compression technologies on the PC currently are Microsoft's Video 1 be a consensus. This will bring and Intel's Indeo - both of which are offered in Video for

Windows. On the Macintosh Quicktime system, the main technology is Cinepak developed hy Radius.

These are proprietary standards and, therefore, limited compared to emerging stan dards from the US organisa-tions, the Joint Photographic Experts Gronp (JPEG) and the Motion Picture Experts Group

The original JPEG standard was devised for compression of still pictures. But it has been new name - Motion JPEG or M-JPEG. This should not be confused with the emerging MPEG standard which is spe-cifically devised for video.

The first MPEG compatible products have begun to appear. Both Truevision and Miro two leaders at the top end of the graphics adapter market launched MPEG products at the Cehit exhibition last March. Other products will follow - taking the MPEG standard to a wider audience.

Another key standard for video has emerged from the Video Electronic Standards Association (Vesa). Called the Vesa Media Channel (VMC), this standard aims to reduce the burden on desktop computers when it comes to processing video signals.

The various components inside a desktop PC - the processor, the storage, peripheral devices, and so on – are linked by what is called a system bus'. All data moving from the computer's processor to mem-ory and the screen is carried on the bus. Data-intensive tasks such as video processing place an enormous load on the

he VMC acts as a hypass and carries video the PC bus is a bit like the M25 motorway - it doesn't matter how many lanes you build – it still clogs up at rush hour. The VMC is like a flyover and allows you take multipl video streams straight to the screen," says Mr Neil Davison, European marketing manager for Videologic, the multimedia

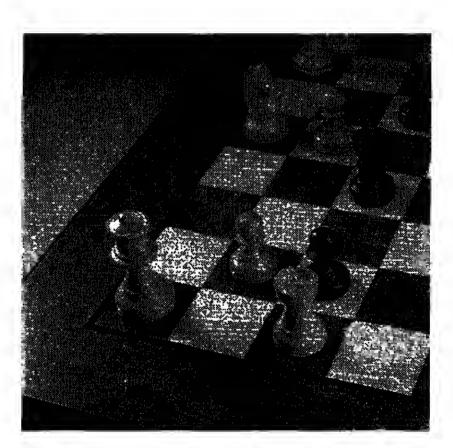
"The nice thing about VMC is that it works with the existing bus architectures on the PC - which is very important for the installed base," he adds.

VMC's ability to carry multiple video streams is especially important in areas such as financial services, he says they want to be able to carry things like Reuters and CNN

on their desktops." VMC looks set to become an important mainstream multimedia standard, according to Mr Davison - "Compaq has built it into its new range of PCs, which is very important for its acceptance. Other manufacturers are bound to follow

their lead," he says. The standards infrastructure for multimedia is evolving fast and – unlike many earlier technologies there appears to benefits both to the industry

Several Moves Ahead



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CASE STUDY Rover dealers' multimedia system

New way to sell cars

Customers select vehicles via multimedia kiosks

The increasingly competitive motor car industry is always looking for new ways to sell its products. It is no surprise. therefore, that manufacturers should turn to advanced technology as a means to gain an edge over their competitors, writes Philip

Multimedia point-of-sale kiosks are an obvious choice. The glamorous nature of the product lends itself to multimedia presentations and interactive features can let prospective purchasers 'configure' their own model.

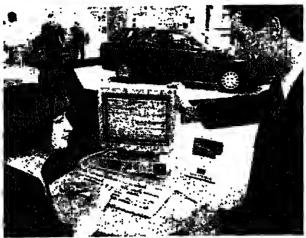
The Rover Group claims to have the most advanced system of this type. Under the name Discus, the system is heing rolled out to the manufacturer's 500-strong UK dealer network this year and there are plans to extend it across Europe in 1996.

What makes Discus different to most multimedia 'kiosk' applications is its connection to other information technology systems. Not only does it link through to Rover's manufacturing systems - so orders can be processed quickly - it also links into the dealer's own systems.

"As far as I am aware Rover is the only manufacturer that is integrating with the dealer's own systems," says Mr David Stubbs, Rover's product manager for Discus.

Discus stts on a Windows PC in the dealer showroom. It displays car model specifications together with

PROPERTY AND IN



system includes full-motion video and still images, allowing customers to 'create' vehicles on screen

the system is bow it changes video sequences of the car in a variety of situations. The the manufacturing process. The PC is linked directly to multimedia system based on the Rover factory so it can Videologic's graphics adapter cards is used to display access the most up-to-date high-quality video on the PC's information on the current models. And it can accept an screen to illustrate model order and give the customer a ontions such as automatic delivery date for their new car. There are long-term plans

to take this further - "by mid-1996, we aim to make the sys-

tem completely on-line and tie

ers. Not only will this save us

money by reducing inventory.

it means we can make contin-

uous improvements and keep

changing the whole way that

cars are sold in the future -

we've built something which

we hope reflects the way peo-

ple do business and the way

that husiness is done. It will

either change our understand

ing of the market or change

You only need 10 letters to e-mail 22 million people worldwide.

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the market itself".

track of them," says Mr

Stubbs. He sees Discus

right through to our suppli-

braking systems and airbags ~ "modern cars are so complex that customers can easily be bombarded with facts. You could give them telephone directory and tell them to study the options. But with Discus they don't have to drink from a firehose tbey can sip from a glass," says Mr Stubbs.

It also helps the sales staff. It is so hard to keep up with the changes. This systems makes sure they give the right answers to customers. be adds. The Discus systems also includes the possible financial options available to purchasers.

But the real advantage of

■ On-ilne multimedia

Marriage of two technologies

A new service is created with a combination of networking and multimedia

nnovations in technology have always spawned new industries and taken new companies from start-up to corporate respectability at lightning speed. Multimedia technology is no exception and the first of what will he many innovative companies are now starting to come to the market,

writes Philip Manchester.
The Multimedia Library. hased in London, is a good example of the type of com-pany to be created by the new technology. It brings together two technologies - networking and multimedia - to create a new service for industry: on-line multimedia.

"I was working in the conference business - putting together large-scale presentations for big corporates. It was hard to find good-quality presentation material for video and graphics - and it took a long time to get delivery. explains Mr Richard Johnson. managing director of the Multi-

media Library.
"We thought that we might find a company that was able to deliver multimedia content over the network - but were disappointed when we couldn't find one. We trawled through the networks - but nothing. My colleagues and I saw an opportunity to provide a sersays Mr Johnson.

It helped that he was working on a contract for British Telecommunications to promote its Integrated Services Digital Network (ISDN).

Graphic designers and video producers obviously need the highest quality material for presentations and ISDN has the speed and capacity to deliver it. Mr Johnson and his colleagues saw the connection and set up the Signpost service to provide a range of multime-dia 'clips' over the network.

"There are lots of companies offering multimedia clips on CD-Rom - hut as far as we are aware no one else in the world is doing quite what we are doing," he says.

The Signpost service offers designers and producers access to a broad range of multimedia clips - from high-resolution stock photography to andio and video clips.

The Signpost service. launched in Fehruary, is available over a range of ISDN services including the Internet ISDN - an important factor, he adds, because right from the start Mr Johnson saw the need to provide a 'global' service. It can be accessed from Windows PCs. Apple Macintosh and Unix-based computers, Charges are hased on usage.

"We think it will change the way businesses use multimedia and we have worked hard to make sure that it is accessible. We think it is important to cut through the technological jargon so often pushed by equip-

ment manufacturers," be says. The Multimedia Library points the way forward to a new range of services which are made possible by combining multimedia and advanced communications. It is the first of many.



Satellite-based multimedia network

Siemens Nixdorf, the computer company, has joined forces with AphaServ to offer retailers what is claimed to be the world's first satellite-based

multimedia sales information network. ViewPoint, pictured above, enables retailers to broadcast sound and video images from a central

location, via satellite, to standard television sets in each of their branch stores simultaneously – for the cost of a single transmission

CASE STUDY New venture by Daewoo

Sales-room multimedia system helps to win over sceptical customers

In a report submitted to a G7 nations' summit on the information society earlier this year, consultants Coopers & Lyhrand claimed that the rise of multimedia technology was being hampered by confusion and a lack of awareness. Coopers & Lyhrand reached this conclusion after polling business leaders in 383 companies across France, Germany, the Netherlands and the UK. urites Michael

Dempsey.
According to the report's anthors, the EU should encourage co-operation and discussion between leading organisations in order to foster a general migration to applications and services that combine text, video and sound delivered through one interactive channel.

Many of the survey's participants reflected a common belief that the US and Japan will inevitably leave European di behind in the rush to apply multimedia systems to retail and financial services.

James Roper, director of the Interactive Media in Retail Group, thinks that one of the more effective examples of multimedia in action is being deployed by an Asian concern. But South Korean conglomerate Daewoo is using a British package to win over sceptical customers in the hard-selling world of

the car industry. Daewoo embraced multimedia after studying the basis of sales resistance among its prospective customers. People are reinctant to venture into a car sales-room because they may face instant pressure from unvielding sales staff. Multimedia technology offered Daewoo a way ont of this traditional conflict, says Mr Roper - "they took on the challenge of directly

empowering the consumer". The project began in October 1994 and faced extraordinary deadlines. Daewoo began operating its £1.5m multimedia system in April.

Customer's choice The prospective car-buyer enters a showroom and sits in front of a powerful PC with a touch-screen. A separate 'slave screen' merely reflects this duplication makes it physically comfortable for several people to observe the

system. Daewoo knows that the family unit carries a lot of influence in choosing a car. The tonch-screen menu leads the user through Daewoo's full product range, allowing the potential buyer to select colours and specify equipment options before seeing this model up on the

screen. Pricing structures are written into the software to run alongside car variants, so as more accessories are added the price display alters. Financing arrangements and insurance options can be called up and the user can print off the results of his interactive browsing. The audio facility allows a constant narration of the

proceedings.
Software development cost £300,000, but this system would never have been delivered on time without the framework of Interactive Shopper, an ICL multimedia development tool, to capture information and aid Daewoc's consultants.

One to One Interactive Media and Julia Schofield Consultants put the package together.

Car showrooms feature between four and eight multimedia units costing a total of £5.000 eacb. But this a pric orus payi Daewoo business analyst Robert Steele.

"We see it as an integral part of the sales process. It fits in with our 'no haggle, no hassle' philosophy," he says.

All nine Daewoo showrooms in the UK, plus 136 outlets of motor parts retailer Halfords, now offer an alternative to aggressive car salesmen. Daewoo claims that public reception has been "very positive".

■ Video-conferencing - report by Geoffrey Wheelwright

A breakthrough in image quality

Manufacturers are unveiling a new range of high-end systems

7ideo conferencing systems bave been around for a decade or more, hut have traditionally been expensive, difficult to use and offered limited benefits. While they have often been an alternative to travel for some well-heeled multinational companies, video conference systems have not achieved much in the way of widespread

All that, however, is now changing with the advent of new videoconferencing and videophone systems based around PC technology. Tradi-tionally, such systems have suffered from two significant problems - image quality and

Until a few years ago, prototype videophone and some low-end video conferencing systems could either show images at either end as flickering, halting, hlack and white affairs or as even more halting colour images. Voices also tended not to synchronise with the images of the people who

were speaking.

The image-quality problem had a lot to do with the lack of high-definition small screens that could he fitted inside per-sonal videophones - the screens used for video-conferencing were often only marginally better.

The biggest culprit in the whole sorry story was the speed of transmission. If that could be fixed, all the other problems would melt away, observers felt. Most of the lowend systems produced in receot years - and particularly

those that operated over telephone lines - have only been able to show between 10 and 20 image frames per second. It is generally accepted that in order to achieve the best smooth, 'full motion' video. something like 30 frames per

second is required.
Sending 30 frames of complex video information down the telephone line every second is no easy feat - and one which gets even harder when you start adding in the more detailed information needed to process colour images.

The telecommunications industry thought it had beaten part of the problem a few years ago by moving to install premium-cost "integrated service digital networks" (ISDN) - so that the information, sent out over a phone line, would be digital, just like data handled by computers and compact disc

hen information is stored in digital format, it can be more mat, it can be more easily manipulated by systems that incorporate computer pro-cessing power. Although these have been helpful, they are by no means installed universally and are not the only key to the solution. And this is where the personal computer comes in. To achieve the kind of performance and quality necessary to make digital video-conferencing technology an affordable reality, users need a good deal of computer processing power to 'shuffle bits around' on the

Users also need high-quality colour displays and data compression/decompression auftware. The usefulness of the former is obvious, while the latter is required to 'squeeze down' the amount of information needed to he sent over the phone line and then expand it again when it has been

recieved the other end. PCs have been doing all these things quite successfully in recent years. Processing power is now approaching that of the mini and mainframe computer world, high-quality, digital colour displays are in common use in many personal computers and some form of compression/decompressioo software is an everyday part of many PC users' software utility libraries.

There is also heavy incentive for hig suppliers in the PC market - such as Intel and Micro-

set - such as intel and Microsoft - to promote the use of video conferencing.

For Intel, widespread demand for videoconferencing will further drive demand for the high-end processors used to achieve maximum performance in videoconference systems - while Microsoft will benefit from sales of operating systems that provide software support for videoconferencing applications.

Intel is being very aggressive in seeking agreements with partners who can help foster the creation of a video conference-friendly business environ-

In the US, for example, intel announced late last year deals with the New York telephone company, NYNEX - as well as operations division to promote the sales of Intel ProShare (plus Intel RemoteExpress ISDN Lan adapters) when they

were seiling ISDN services. Those agreements mean that anyone who signs up for ISDN services from either of those companies receives a substantial discount to buy Intel Pro-

Continued on facing page

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Desktop video-editing - report by Tom Foremski in California

Price barriers are falling fast

New, lower-cost animation and editing systems offer good results

investment in add-on boards and software a PC or an Apple Computer Macintosh system can be turned into a sophisticated vet inexpensive version of a professional analog video-editing system costing much more.

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Princip - for the con 1

With the addition of animation software, desktop computers become versatile video and animation anthoring systems that can produce spectacular results.

Although desktop video-editing has been possible for several years, the drawback was that you needed high-end and expensive workstations. Fortunataly, advances in graphics chips, faster microprocessors at lower prices, and better soft-

Tith a reasonably modest ware now enable developers and users to edit video on reasonably inexpensive systems.

Gone are the days of 15 frames per second (fps) video editing in quarter-screen-sized windows with jerky playback that never seemed able to match the dialogue, like a badly dubbed film. These days, many video-editing packages sup port 30 fps which is smoother and almost matches the quality of VHS video cassette recordings. And most video playback software such as Microsoft's Video for Windows and Apple's QuickTime can play digital video at full screen and improved resolutions.

There are also low-priced add-on boards that support the MPEG

(Moving Pictures Experts Group) standard and provide improved video playback of compressed video

Most of the better video-editing packages use a graphical user Interface and provide special effects and transition effects between scenes. Adobe System's Adobe Premiere 4.0, Ulead Systems' MediaStudio and Razor 2.0 from In:sync are good examples of the kinds of sophisti-

cated yet inexpensive video editing packages available.

PC-based video-editing systems are not yet able to match the performance of a high-end analog video editing systems designed for broadcast TV, but they can be used to assist in video-editing tasks.

There are also many tools and different types of digital video clips available. Morphing packages are popular in which the software automatically makes a transition from one image into another.

For example, the image of the face of one person, can be made to change into that of another. Software packages such as Morph from Gryphon Software offer smooth transitions between images.

There also many CD-Rom disk based libraries of digital video clips that can be added to a video production. For example, Four Palms' Royalty Free Digital Video Libraries is a series of five CD-Rom Windows based disks with each one containing 70 video clips along the theme



Mystic demo; new special effects are available with the 3D Studio Release 4 m from Autode

of transportation. The collection covers air, sea and rail transporta-tion, plus bridges and highways. clip ranges from four to 15

seconds long.
For high-end video-editing, costs are much higher but the flexibility offered by digital as opposed to analog video-editing systems is a valu-

able feature, Systems such as Avid Technology's Media Suite Pro and Data Translation's Media 100 2.0 have become popular alternative choices to analog video editing

systems. Video-editing software need not be complicated and there are children's software packages that teach many of the basic skills. For example, Nickelodeon Director's Lab from Vlacom New Media, lets users combine video clips and add sound

plete video. Animation is another task well suited to computers especially 3D animation which is used in video ames to add realism. Autodesk's 3D Studio 4.0 Windows based package is one of the best 3D animation packages available. As its \$3,000 price suggests, it is aimed at profes-

sional developers.

Many multimedia authoring packages such as AimTech's IconAuthor 6.0 for Windows systems and Macro-

Media's Director for Windows and

Macintosh, offer support for animation. The recently introduced mTropolis Macintosh multimedia authoring system from mFactory takes an object-oriented approach toward animation, letting developers produce animation sequences with less programming. MTropolis makes it easier for non-programmers to produce animated sequences. Again, these are expensive packages aimed at professional developers.

However, there are many low-end animation packages that are easier to use and produce good results. For example, AniCom's 3D Choreographer Windows based animation package costs just \$150 and allows users to create animated sequences.

Big Top Productions has created Cartoon Toolbox, featuring Felix the Cat, aimed at children. This Macintosh and Windows title allows users to create a Felix the Cat animated cartoon sequence with special effects, sound effects, choice of music and several different charac-

I images and networks - report by Philip Manchester

No simple solutions

A picture may be worth a thousand words, but moving images and documents around a network is no easy task

mages and networks are a problem. As the demand for image processing grows, current networking technology is less able to cope with the large data volumes involved. Furthermore, managing images places even greater demands on storage media and the software needed to manage

The amount of storage needed to store this article as a text file is about 5,000 characters. To store a full colour image of the same information at a reasonable resolution is about four million characters. While this does not mean that existing networking tech-

nology needs to be multiplied a thousandfold, it certainly needs to be improved.

The whole issue of infrastructure is critical because image processing technologies are very data intensive and put quite an onus on the network," explains Mr Colin Weir, gen-eral manager at Bull UK with special responsibility for image

So you need an infrastructure with more resources. You need greater bandwidth to cope with the data volumes. But it's not just the network. You also need skills in integration and the special storage devices."

These are pressing problems. Image processing is an important area of development for many organisations - especially when combined with document management which is the main application of image-processing technol-

Market researcher Wharton Information Systems says that installations of document management systems in the UK alone increased by 80 per cent



can put big strains on a network

in 1994 with revenues of £125m. Wharton expects the UK market to be worth £1.8bn by the end of the decade - "there are two reasons for this: firstly, the growth of image-workflow technology on the desktop is increasing demand for document management server prodncts. Secondly, image-based technology is being incorporated into existing applications across business," says Ms Andrea Wharton, director of research at Wharton.

"Image processing and document management is increas-ingly helping applications do their job more effectively," she

be demand for image technology on the desktechnology on the desa-top is reflected in the alliances being formed between suppliers of image-processing technology and workflow software. Products such as Lotus Notes and Oracle Offica are being extended to include image processing. But Ms Wharton adds that

the same trend is detectable in more established areas. She notes that Filenet, one of the leading document management software companies, has, for example, recently signed a deal to develop image technology with SAP - a supplier of traditional accounting and manufacturing software.

Mr Weir, of Bull, also sees the demand for image processing being driven by applica-tions which build on existing systems: "Typically, it is about improving customer service and managing paper-intensive processes. Take local government, where we have a lot of experience. Revenue collection systems use large amounts of documentation - hand-written forms and so on. They need to bring all this together in an image-based document management system."

He adds that financial services organisations - such as insurance companies - have a similar need: "The more services they offer to their customers, the greater the need to offer access to information. If a customer phones in with an enquiry, staff need to be able to get at all of the relevant documents quickly." says Mr

> Inevitably, this means a greater emphasis on moving images around networks thus putting pressure on the infrastructure.

"There has to be some sort of strategic thinking by organisations to cope with this," says Mr Geoff Aldridge, workflow marketing manager at Xerox's software subsidiary, XSoft.

"In many cases you can

move the references to the image across the network and only pull the actual image across when it is needed. You can also use data compression to reduce the load," he says. Mr Aldridge also points out that developments in other areas of software are helping to resolve the problem: "The database software companies are working on distributed

"You also need to look for reliable network services to solve the problems of interoperability between different

database techniques so that you have the information in the right place to start

This is the objective of the Document Management Alliance, to which we belong. Its objective is to provide open software across the network to support document images. This, Mr Aldridge adds, is especially important when

organisations are expanding

existing applications to include

image processing and docnment management "We must remember that most legacy systems were not designed with this in mind - so we need tools to help integrate the new with the old," ha says.

destined to play an increasing rola in IT systems and this will place a greater load both on the networking infrastructure and on software. The technology to solve these problems is moving fast, however. Communications suppliers are working on faster, higher capacity networks, hardware companies are building the input and output devices - scanners, printers and screens - and software companies are developing the management software to control it all. And for once, there is no shortage of demanding applications which will benefit from the technology. By the end of the decade, it seems likely that we will take images

Developments in videoconferencing

Continued from facing page:

Share and Remote Express. Intel's ProShare Video System 200 lets users see each other on the PC screen and work simultaneously on shared documents, 'whiteboards' and applications - while Remote Express Lan allows users to bave Lan-connection performance to office LANs from wherever they have their ISDN line installed.

Intel is also not counting on telecommunications companies alone to 'carry the ball' for its videoconferencing efforts. Compaq, Dell, Digital Equipment and a range of other PC manufacturers have also committed to promoting the system. AT&T's Global Information Systems (formerly NCR) offers its own videoconferencing system - and Intel also has the commitment of companies such as Northern Telecom, Novell, PictureTel and Word-Perfect to further mutual evolution of standards.

PictureTel, meanwhile. recently unveiled two new pro-

fessional group videoconference ing systems that it says are "designed to make videoconferencing as widespread a business tool as the telephone". The new high-end Concorde-4500 and mid-range Venue-2000 systems - as well as its Montage-500 series of "conferencing servers" - are supposed to replicate more closely than ever the experience of an "in-person" meeting.

This is the biggest product roll-out in our history," said Dr Norman E, Gaut, chairman and CEO of PictureTel. "We've expanded our broad product offering with the Concorde-4500, the ultimate viewing machine against which all other dial-up group videoconferencing systems will be measured. The Venue-2000 is an important new mid-range system, designed for first-time users needing high-quality, easy-to-use videoconferencing at a popular price point. The Montage-500 delivers the industry's easiest-to-use multipoint conferencing servers, and its lowest priced four-port bridge.



The Vistium personal video system, from AT&T Global Information Systems (formerly NCR), offers co-operative working at a distance - "a way of being local, worldwide," says AT&T

Together, these products solidify PictureTel's already dominant market position."

They are not, bowever, cheap. The Concorde-4500 has a snggested US list price of \$43,995 - while the Venue-2000 has a list price of \$21,995. The Montage-500 series of conferencing servers have US list prices

beginning at \$35,000 A great many strides have been made in PC and networkbased videoconferencing over the past year, but some buge leaps may be expected in the next 12 months if even half of the planned joint arrangements between companies such as Intel, Microsoft and AT&T are achieved.

All these companies are starting to offer impressivelypriced technological solutions to videoconferencing require ments. The real question they now face is: what if it is lack of demand, rather than technological or financial barriers. that has prevented growth of the videoconferencing industry in the recent past?

The answer to this query would make a great subject for debate at your next videocon-

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Survive the

networking

■ Business on the Internet - report by Louise Kehoe in California

Commerce flourishes in cyberspace

The Internet has grown far beyond its roots as a tool for US university and government researchers to become a global communications medium for individuals, governments, businesses and educational institutions

The rapid expansion of the Internet, with as many as 40m users and almost 5m host computers now linked to this global web of computer networks, has created a new form of business communication and a valuable tool for marketing and

Use of the Internet by businesses is growing exposeotially. Last year, 46 per ceot of US publicly traded companies with annual sales over \$1.5bn

had a presence on the Internet.
The OpenMarket directory of commercial services on the Internet listed 1,465 companies in December 1994. Over 500,000 commercial Internet addresses were registered and oew commercial sites are growing at a rate of 92 per ceot a year. according to the Internet Society, an international organisation that oversees technology and applications of the Inter-

The proliferation of business users on the Internet reflects its value as a communications tool and a oew marketing and sales channel. With close to 5m computer systems now linked to the Internet, so many poten-

tial customers have access to information posted oo the Net that businesses cannot afford to ignore it. The fastest growing portion of the Internet is "World Wide Weh" (WWW), which provides a standard set of protocols for presenting and retrieving information. It allows users to jump automatically from one database to another by clicking on "hyperlinks" without having to know where the information is

Traffic oo the WWW grew by 1,151 per cent in 1994. By early this year there were over 15,000 World Wide Web "home pages". Between December 1 1993 and November 30, 1994, more than 13m megabytes of data were moved across the Internet via the WWW, according to the Internet Society.

Tumerous companies have established "elec-tronic billboards" on the WWW to show off their wares, creating a flourishing "commercial district" in cyber-

Ooe of the appeals of the Internet is that it provides fast, effective and inexpensive Microsystems is another new means of data communica- Web browser. Rather than simmeans of data communica-tions. Small companies gain the benefits of global networking formerly available only to large corporations with dedicated lines linking remote

WWW sites range from simple lists of products to elabo-rate multimedia presentations incorporating three-dimensional images, sound and video created using the latest WWW software.

WebSpace, from Silicon Graphics, for example, can be used to create three- dimeosicoal "virtual worlds" on WWW pages. The software can be a powerful marketing tool for service industries such as tourism and restaurants enabling potential customers to view a holiday resort or pick a table for dinner by electronically "walking" through a sim-

ulated 3D image. The software is also expected to be used to create electronic shopping malls where customers can wander around looking at merchandise, move closer to examine products of interest and look at them from every companies of all sizes with a angle. Hot Java from Sun

ply transferring static pages of text and graphics to a user's computer, it also downloads mini-applications programs, or 'applets' created using Sun's Java programming language.

Business applications abound. Sun demonstrates a financial planning information site that features a moving share price ticker across the top of the screen. Beyond marketing and com-

munications, the real promise of the Internet is electronic commerce - transactions conducted via computer networks. Already there are several electronic catalogues on the WWW offering a wide range of consumer products.

Others are pursuing husiness to business transactions via the Internet. In Silicon Valley. for example, a consortium of high tech companies is creat-ing CommerceNet, an Internet marketplace for electronics products. Using a secure browser program, customers can order products directly over the network.

The WWW is also a new medium for publishing groups,

version of the trendy San Francisco high-tech magazine, is a hig attraction on the WWW. pioneer in electronic newspa-pers publishing with its Mer-cury Center on has also taken to the Internet.

usiness applications of the Internet are not, the Internet are however, restricted to marketing and sales. Sun Microsystems, the leading supplier of computers linked to the Internet is also itself a heavy user of Internet applica-

The computer company is using the WWW to reduce costs of employee and customer training, printing, soft-ware distribution and customer service. Sun claims to save about \$1m each quarter hy distributing software patches and pre-release versions of new programs on the

Almost any type of business can benefit from the use of the Internet's electronic mail service. Messages can now be sent

with hundreds of newspapers and magazines already on the Web. HotWired, an electronic where in the world where there is a computer linked to a there is a computer linked to a network or telephone line. Over the past few years the

Internet has become a conduit for millions of electronic messages. Digital Equipment, one of the heaviest users with over 40,000 computers linked to the Internet, exchanges an average of two million e-mail messages per month with people outside the company.

Unlike telephone calls, facsimiles or conventional mail, the cost of Internet electronic mail is independent of how far the message must travel, making it a hig cost saver for inter-

For all of its advantages, the Internet is far from perfect. It lacks a comprehensive directory of users and services and has suffered from troublesome security hreaches.

Business users can nonetheless take advantage of the Internet today, and look forward to improved services as new software and encryption technologies continue to transform the global computer oetwork into a robust business



the internet. The service provides a week-day news summan of the main international and business news stories in the FT

and from other business services already on offer Further developments to the site will be made in line with he response from Net surfers. The Web address is:

FINANCIAL TIMES REVIEW Information Technology

FORTHCOMING ISSUES

The next issue of the IT Review will be published on Wedn July 5. Once again, there will be a four-section formet - a main focus, a software at work theme, an update on facilities management and outsourcing, plus an IT 'directions' section. There will be no IT review on the first Wednesday of August.

"Market share

The July 5 issue will include:

Computers in Finance Human resources softwa Rapid applications, deve T outsourcing report

The September 6 issue:

Computers in manufacturing Enterprise intelligence Virtual reality III IT outsourcing report

Computers in retailing Logistics and distribution Geographical information systems

The November 1 Issue:

Technology in the office Sales and marketing a Banking technology

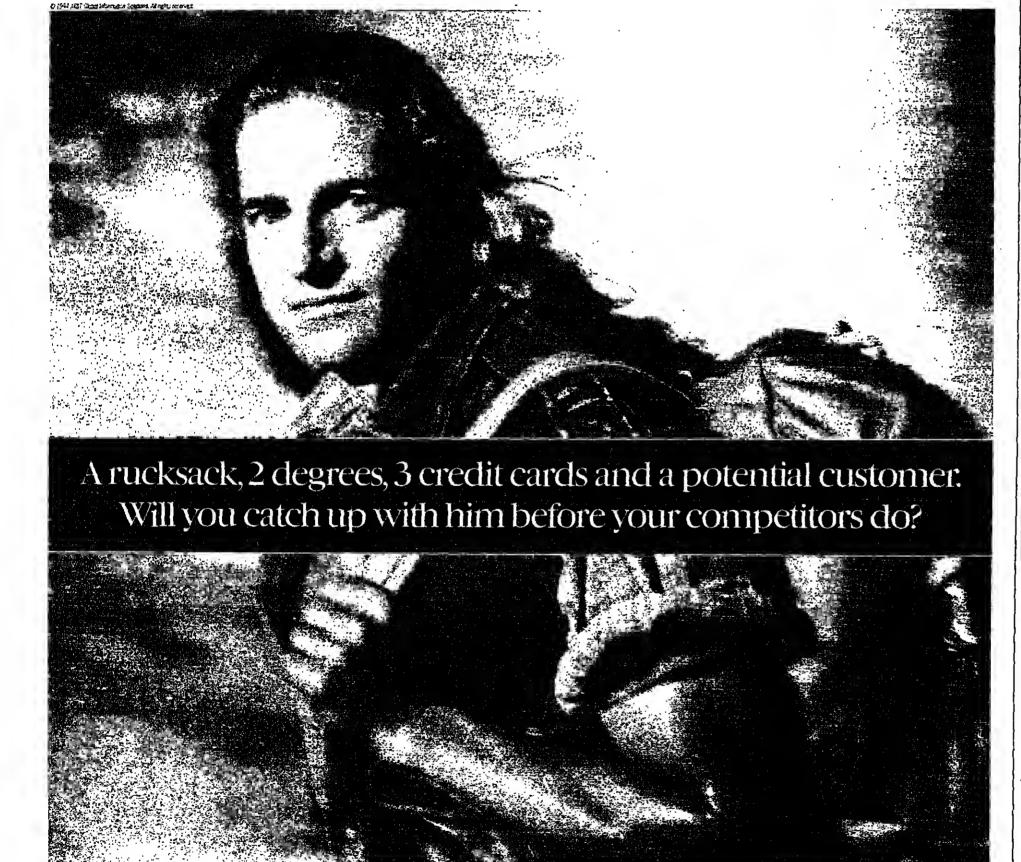
IT outsourcing report

Accounting packages

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Editional background information for consideration about the sent in eming one month before publication, to



If you judge by appearances or only have a superficial knowledge of your customers, how can you really provide them with

When senior executives, sales and marketing, product development and distribution people have access to the right type of customer information, their ability to outpace the competition can increase by as much as £000% according to a Harvard Business Review article,

There's no doubt about it. Customer information can be the most powerful tool a company has, Of course other information

companies talk about focusing on the customer, but our heritage lets us do more than just talk.

We have united the strengths of computing and communications to provide you with the tools to Get, Move and Use customer information in a way that you have never been able to do before.

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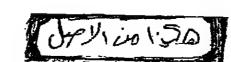
Not only can we help you to analyse your customer information in an infinite number of ways, we can also give you a scamless upgrade path to protect your investment as your needs grow.

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Bringing computing and communications together to help you get. more and use information





Page 2

Page 3

IECHNOLOGY REVIEW

Synthesis Adopted Worldwide

"Give me where to stand and I will move the Earth," Archimedes said, in praise of the multiplying effect a lever has on the strength of the human frame. For the \$100 billion a year silicon chip industry, the lever which multiplies the ingenuity of a human mind is a tool called 'logic synthesis'.

Cilicoo chips underpin an elec- | given de Geus's program to gronics industry expected to be worth between one trillion and two trillioo dollars a year by results were often a pleasant

the end of the decade. By theo. electronics- will be the world's biggest business, overtakiog rbe automotive industry in the top

But it is a business whose growth is threatened:.... by. ever increasing complexity. Electronics design-

ers have only-ooemaotra - 'smaller, faster, better, cheaper'. But though the Dr Aart de Geus, president inexorable minia- and CEO of Synopsys.

turisation of the chip making process is giving Synopsys (SYNthesis OPtidesigners teo times more logic to work with every six years, designers are not becoming ten times more clever. The difference between the complexity offered by chip makers and designers' ability to exploit it is widening, creating a productivity gap in modern chip design. It's this gap logic synthesis helps close. So what is it?

74% market share

Andrews Services

n and the notificence

When Dr Aart de Geus started working oo logic synthesis, at Geoeral Electric io the mid 1980s, he used it to make a general descripcio of a logic function fit a specific set of predefined logic elements - a form of desigo optimisatioo. Now de Geus is president and chief execurive officer of Synopsys, a 250 million dollars per year electronic design automation company which has nearly three quarters of the world's logic synthesis market, according to industry analysts Dataquest.

But de Geus ensured his optimisations came up with not just the simplest answers, but also those that would produce the fastest logic circuits as well. Designers. who bad speor weeks optimising | logic. a logic function by hand were

try out - they had oothing to lose, after all - and found

surprise. "The performance of the circuits was the big differeodator for our product," said de Geus. "and a key attribute for designers to use synthesis." In 1986-de Geus took the opportunity General Electric offered to commerwork, co-

fouodiog misation SYStems) as the vehicle. The fledgling company used the GE work to show potential customers what synthesis could do, while refining it for a commercial launch in 1988. The result, dubbed the Design Compiler, is still in Syoopsys's raoge today, seven years later, although in a much

enhaoced form. But although synthesis started as the optimisation of a design at the most basic level - interconoected logic elemeots or 'gates' it was only when designers started using more abstract ways of describing logic thar synthesis's ability to multiply designers' productivity emerged.

At the end of the 1980's a new way to describe logic using text, rather than diagrams of interconnected logic gates and wires, emerged. These hardware description languages' give designers the chance to hide some of the detail of a logic design by describing it at a more abstract level. As these languages emerged, Synopsys synthesis came into its own by being able to automatically translare between the levels of description. as well as optimise the detailed

Geos draws a parallel with an architect describing a house to a huilder. Initially the architect might define everything about how the house is built - the numher of bricks in a wall, where power points and plumbing go and so oo - the equivalent, in terms of its level of abstraction, of describing every logic gate and interconnection.

Adding most value

But architects need to coocentrate on where they cao add most value to the process of producing bouses and other more complex buildings. So they would be better served by defining how the rooms relate to each other - the garage is hy the kitchen, the ware description languages

kitchen opens into the lounge - ! trusting the builder to handle the

In logic design terms, this would be a 'structural' description of how a function is pro-

But the biggest leap of faith the architect could take would be to simply give the builder a description of what the house is expected to include - five hedrooms, three bathrooms, reception, etc. rather than bow ro-achieve that, and leave the rest to the builder. To make an equivalent leap of faith in logic design, eogineers describe the behaviour of the logic, and leave developing the 'how' up to the synthesis tool. In electronics, the use of hard-

you want in your next portable phooe, for example. So rbe use of synthesis has been advantage.

(Verilog and VHDL) and synthe-

sis has allowed engineers to

increase their productivity ten-

fold or more. It has also given

systems companies the chance to

spend more time on exploring

the key business decision they

have to make - wbat to produce,

and when, rather than how to

"We see a shift in emphasis of

where companies add their

value, away from the actual

detailed implementation to the

much more detailed understand-

ing of the application," said de

Geus. "Now it's more important

to have an understanding of the

sysrem - what kind of functions

produce it.

driven by the oeed to manage the increasing complexity of systems, and to free engineers from the detail of their designs. But another key driver has been the need to get products to market on ome, and right first time.

Take an example from the high volume, low margin multimedia industry. A high speed graphics processor for a multimedia PC may represent, on one piece of silicon, a more complex and powerful system than the 100+ chips of the original IBM PC. The chip will be built using a manufacturing process as complex as that used for the fastest PC processor, but will sell for a tenth of the price.

Sales of the chip will progress from zero to maximum volume and back to zero again in nine mooths. The chip will have been designed in six mooths or less, and if the first samples don't work, then by the time the chip is revised its chance in the market will have passed. A huge investment io design and development will have been wasted.

New paradigm

Synthesis helps designers get it right first time for a number

of teasons. Designers should have been able to spend more time ensuring that what they are setting out to achieve is right for its application, rather than rushing into detailed work just to get something usbed in time

The use of synthesis can also belp add some discipline to the ovetall design process. Hardware description languages and synthesis are relatively new techniques. Managers can use their introduction as an opportunity to impose some rules about design styles, design review, documentacion and sign off-even design with consideration to later re-use. Synthesis can even be used to automatically include testability-features in a design.

Worldwide, the adoption of synthesis has created a new paradigm. The list of Synopsys' users

reads like a rollcall of all the top electronics aod computer companies, as well as leaders in telecommunications, consumer electronics, and sectors such as automotive, aerospace and defence.

Now, more and more compaoies, many of whom have never designed an ASIC, FPGA or silicon chip before, are using high-level design and synthesis to produce better, more reliable products faster, win new markets and increase their comperirive

Coping with the fastest rate of change in human history

By the year 2000 the microprocessor at the heart of your desktop PC will use 50 to 100 million transistors to perform its role, if the predictions of the semiconductor industry's most respected figure remain correct.

Twenty years ago Gordon Moore, chairman and cofounder of Intel, delivered what bas become the most important statement yet made about the chip industry.

In an invited paper to the 21st International Electron Devices Meeting in 1975 he said: "The complexity of integrated circuits has approximately doubled every 18 mooths since their introduction. Cost per function has decreased several thousandfold while system performance and reliability have been improved dramatically."

The prediction that chip complexity doubles every year, now known as Moore's Law, has been borne out in the 20 years since it was made. Intel's Pentium processor uses 3.1 million traosistors, its predecessor closer to one million. The P6, a follow up to the Penoum, calls on over five million transistors, while the P7, still in design, is predicted to use up to 10 million transistors.

By the turn of the centuty, as Intel speculated in an exercise called 'Micro 2000', the processor in your deskrop PC could be using 50 to 100 million transistors.

No wonder then thar, with such complexity to handle, designers are crying our for better tools to

slash time-to-market and boost productivity - this is the challenge addressed every day by Synopsys and other leading software companies in the fast growing electronic design industry. This year's

annual showcase for the business - the 32nd Design Automation Conference .- takes place in San Francisco's Moscone Center from June 12 through June 15, 1995 attracting thousands of design engineers and managers from every corner of the globe.



\$40m SILICON ARCHITECTS TAKEOVER

To explain the advantage de

Cilicon Architects of Summyale: California tras been acquired by Synopsys for almost 40 unilion dollars in shares and options in a "pooling of interests" transaction completed last month, gaining for Synopsys and there ASIC partners and customers some strategic technology for deep submicron design Known as Cell-Based Array or CBR, the methodology is:

lest for complex ICs with multiple memories, datapaths

and random logic.

Our CBA architecture is extremely efficient for deep submicron designs with arong memory and datapath ent and our compilers are specifically targetted formarket leading applications such as graphics, multimedia. and relecommunications," said Prakesh Bhaiere, who has besome president of the Salicon Architects Group at Symposis. Kurt Kruizer, chief schedust at Symposys; said, "Thave been looking for a library that allows synthesis to realise

its full potential for quality of results since 1987 and, in Silicon Architects' CBA library, finally, I've found it. Three new pareners for Silicon Architects Group of Synopsys are Fujitsu. NEC and Toshiba, who rogether hold some 44 percent of the world market for ASICs. according a recent ICE report Hewlest Packard. Kawasaki, and Philips are already licencess for CBA When Synopsys customers use libraries based on CBA in

their sportiers process, they achieve area reductions between 30 and 60 percent over standard gate array libraries, depending on whether the designs are logic or memory intensive. Signicantly, many licencees of the Silicoa Architects' technology are also semiconductor partners with Syriopsys. This strategic acquisition allows us to extend the tradirional electronic design automation business model to include royalities from future sales of silicon chips," said

Aart de Geos, president and CEO of Sympsys.

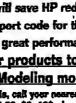
HOW HP AND SYNOPSYS GOT THE HP LASERJET PRINTER TO MARKET FASTER.

The HP Boise Printer Division needed to develop the key ASIC for a new HP LaserJet® Printer design-fast! So they took an Empowered Engineering approach and created a world-class design environment complete with HP 9000 workstations, Synopsys' high-level design software and Logic Modeling SmartModels*- all in an integrated environment with a common database.

Synopsys' VHDL System, Simulator" (VSS) and SmartModels' let HP simulate the ASIC with the major components surrounding itpins-out, verification-to verify its performance for production. Plus, Synopsys' synthesis and VHDL code reuse capabilities will save HP redesign time in the future. HP's designers can choose from 250 target silicon

> libraries and port code for the same chip to more than one vendor. This demanding process was expedited thanks to the great performance of HP's powerful 9000 workstations. Propel your products to market - use Synopsys' proven software

and Logic Modeling models. For further details, call your nearest Synopsys office: UK: +44 1734 313822 France:+33 1 45. 12.0606 Germany: +48 89 99. 39. 120 Japan: +81 3.4341.5300 Singapore: +65 296.7433 US: +1-800-346 6335



HEWLETT PACKARD

Building a company worth over one billion dollars in just 8 years

Frustrated with the flow of red ink in its semiconductor operarious. General Electric decided in 1986 to cur its losses and sold the business to RCA. But a brilliant computer engineer, Aart de Geus, who had pioneered semiconductor design rechnology in GE's North Carolina facility, wouldn't let his dream of revolutionising silicon chip design slip through his fingers and roday the company he helped to create bas a market value of over one billion dollars:

He asked GE to ler him take the new design technology and spin it off into a new company. GE thought so highly of de Geus thar it not only gave him approval to start up the company, but it also invested one million dollars in seed money in the new venture.

For the next two years, de Geus and a handful of colleagues petfected their new design tool, and in 1988 they showed their product for the first time to venture capitalists in California.

Venture capital

Impressed with de Geus' concepts and conviction, the venture capitalists underwrote the young compane, but with two condinons: the company had to move to Silicon Valley in California and a chief executive bad to be hired to run the company. De Geus quickly agreed and since the day when he and Harvey Jones, who became CEO but is now chairman of the board, joined forces, the

Today Synopsys, Inc. (NAS-

DAQ:SNPS) is a leader in developing, marketing, and supporting high-level design models and software for designers of integrated circuits (ICs) and electronic sys-. rems. The company pioneered the commercial development of synthesis technology, which is the foundation of the company's highlevel design methodology. Synopsys offers a comprehensive set of synthesis, simulation, test, and design teuse solutions, which support both Verilog HDL and VHDL. It has a payroll of over 1,200 employees, worldwide sales expected to top a quarter of a billion dollars in 1995, annual growth of 30%, and a stock calue of \$1.1 billion.

Revenues triple

In April 1995, the company reported second quarter revenues of \$62,500,000, against second quarter 1994 tevenues of \$47,200,000. For the first six months of fiscal 1995. Synopsys reported sevenues of \$120,500,000, up \$29.1 million from the first six months of 1994, and net income of \$16,140,000 (84 cents per share) against net income of \$5,403,000 (29 cents per share) for the same period.

This upward trend is reflected in its year-end figures: it closed the 1994 fiscal year with revenues of \$196 million, a 37% increase over the previous year's \$142.7 million.

This tripling of tevenues over the past three and a half years is a direct result of the productivity value the company has brought to its customets, according to Brooke Seawell, seniot vice president and chief financial officet. "It is achieved through continuous enhancements of our cote synthesis products, new innovative design tools, extensive modelling solutions, and superior consulting and support services," he

Emerging markets

"Electronic engineers used to design electronic chips by drawing on papet how the various components of the chip such as the gates and the transistors would be interconnected," said Jim Tully, an analyst with leading market research firm Dataquest.

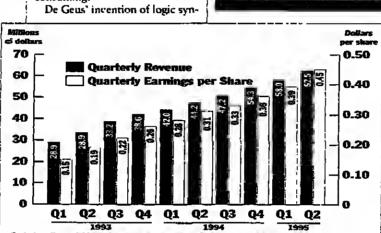
"The problem was that the way you intercunnected the components defined the functionality of

them one way, your chip would be an electronic counter. If you

telephone. Also it was very timeconsuming."

interconnected them another way.

the chip is one you might use in a



thesis revolutionised how chips and application-specific ICs were made. It provided a new methodology that was faster, cheaper and more teliable.

Instead of drawing how each chip would be made, the specification was written out as a mathematical description, similar to a computer code or algorithm. enabling logic synthesis to translate it directly into the citcuit.

For 1995, Synopsys is projectng that 50-55% of irs sales will be in North America, 20-25% in Japan, 20-25% throughout Europe and the remaining 5-10% in emerging Asian markers such as Taiwan, the Chinese People's Republic, Singapore and South

Sales projections

While Synopsys' tevenues account for some 15% of the \$1.6 billion electronic design automation business, when it comes to logic synthesis — the cornerstone of the company's business - in some segments it has 74% market penetration worldwide. Today, the circuit. If you interconnected 1 the company has licensed over

Millions of dollars in Time-To-Market savings

Imagine you are faced with producing a new computer or workstation design with an 18month product life and potential sales of at least ten million

For every month longer the design takes to complete than planned by the design team, the lost revenues total 1.6 million

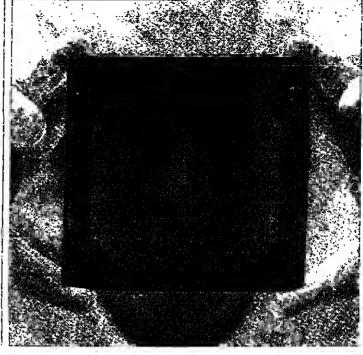
Reducing the design time by use of High-Level Design techniques and synthesis improces the quality of results and achieves the goal of required performance faster, making money instead of losing ir.

7500 copies of its basic design

software to some 600 customers.

Best run EDA company

The company has a strong fol-



First pass silicon successes with Synopsys tools and IBM

Designers using Synopsys Test Compiler and Design Compiler with IBM Microelectronics high-performance ASIC technologies have achieved firstpass silicon success on more than 45 ASIC designs ranging in size from 150K-gates to almost one million gates. Successful customers include companies such as Cray Research, Unisys, 3Dlabs and 3DO.

The Synopsys design-for-test (DFT) solution is available for all IBM process technologies, including the announced 0.36-micron L-effective CMOS 5S process.

landmark leal with

leadii Prope

Synopsys forms core DSP team tion of electronics design automation, as every 18 months complexity doubles. Last month, Synopsys announced

Peter Schleider, managing directur for Wessels, Arnold, & Henderson of Minneapolis, who belped the company when it made a public offering in 1992 at 18 dollars a share, thinks it is the best-run EDA company in the industry. "They know who their customers are, where they are, but on top of that they support, based systems. train, and consult with their customers very well," he says.

Synopsys's renewable income is often cited by analysts. For the second quarter of liscal 1995, the company's renewable incomeincluding training, consulting and maintenance - was 40% uf its total revenue of \$62.5 million.

They tun their business so you don't have to everry as an investor lowing in the US financial comthat they'te going to make their munity where it is considered to next quarter. Also, they're not offer the key for the next genera. I holding back the rechnology their

continued on page 4

the formation of their core team of Digital Signal Processing (DSP) experts to focus on research and development, marketing, sales and training for the company's DSP design software products. Their goal is to provide Synopsys cusromers with a fast path from concept to implementation for DSP-

The company plans to build its leadership in DSP design with innocative system modelling, hardware/softwate co-design, and cosimulation technology.

"This high-calibre team of DSP experts is essential to broaden Synopses' reach into the sestems market and to achieve our objective of making system designers more productive," said Penny Herscher, vice president and general manager of Synopsys' Design Environment Business Unita

"To ensure customet success, we've created a team that can lend the appropriate level of support at every stage of the relationship, from pre-sales evaluation all the way through 10 successful completion of a DSP-based system design. Most importantly, our marketing, sales,

consulting and training personnel

are backed up by a phenomenal

R&D team focused on delivering innocarice DSP design technology."

Director of DSP Tools Joachim Kunkel heads up the DSP Tools group responsible for DSP product development at Synopsys. The group is largely made up of the former R&D team of CADIS GmbH (Aachen, Germany), acquired by Synopsys in May 1994.

"hi the past year, the Synopsys DSP R&D team has made excellent progress in DSP design software product development," said Mr. Kunkel. "Just six months after the acquisition, Synopsys announced Version 6.7, which included direct links to the company's Behavioral,

DAC'95 June 12 to June 15

Proven Path to Best Silicon

Visit DAC '95 between June 12 to June 15 at the Moscone Center in San Francisco to see Synopsys' showcase of software tools, models, and methodology ready to take you on the proven path to

This includes the first public demonstrations of Version 3.3 of Synopsys tools, which started shipping to customers last month. Demonstrations will also show what Synopsys' customers have achieved, in record time, using high-level design techniques centred around Synopsys synthesis. Visitors will also discover how enstomers are using other Synopsys tools, such as the new Source-Level Design tools, to ackieve dramatic increases in productivity and find how modelling enables designers to verify their ASIC designs in the actual context of their system, to help ensure first-time

silicon success. So what's on this proven path?

Digital Signal Processing

This design process starts at the highest level for customers interested in digital signal processing design. The latest COSSAP tools let you describe your enrire DSP application, then implement it in either softwate, for industry standard DSPs, or hardware, in custom integrated circuits. COSSAP uses Synopsys' proven path to successful silicon, from behavioural description all the way down through senthesis.

Behavioral Compiler

Behaviotal Compiler is Synopsys' behavioural synthesis rool to make design trade-offs early in the design cycle. Behacioral Compiler synthesises and optimises algorithmicbased designs, allowing designers to specify the functional behaviour of a circuit evithout detailing the exact architecture. Then you can make easy decisions about tradeoffs between various architectural implementations. Synopsys has taken an innovative approach to behavioural synthesis that makes the tool caluable for circually all designs that are best described by an algorithm. These applications are typically found in telecommunicarions, high-end graphics, multimedia, data encryption, and servo

Design Verification

You'll find a comprehensice demonstration of our VHDL System Simulator (VSS), complete with software and hardware model verification. This three-engine simulator procides verification at the behavioural, RTL, and gate levels.

Source-Level Design

You can design quality in up-front. faster and easier, with Synopsys' new gires you complete source analysis. Using these tools, you can per-

Source-Level Design tools. The first two Source-Level Design mols will be on display: DesignSource, which lers you streamline your design process, and HDL Adeisor, which

form fewer design iterations faster.

quickly track problems to their

source, and easily share and reuse

designs. We'll show you how effec-

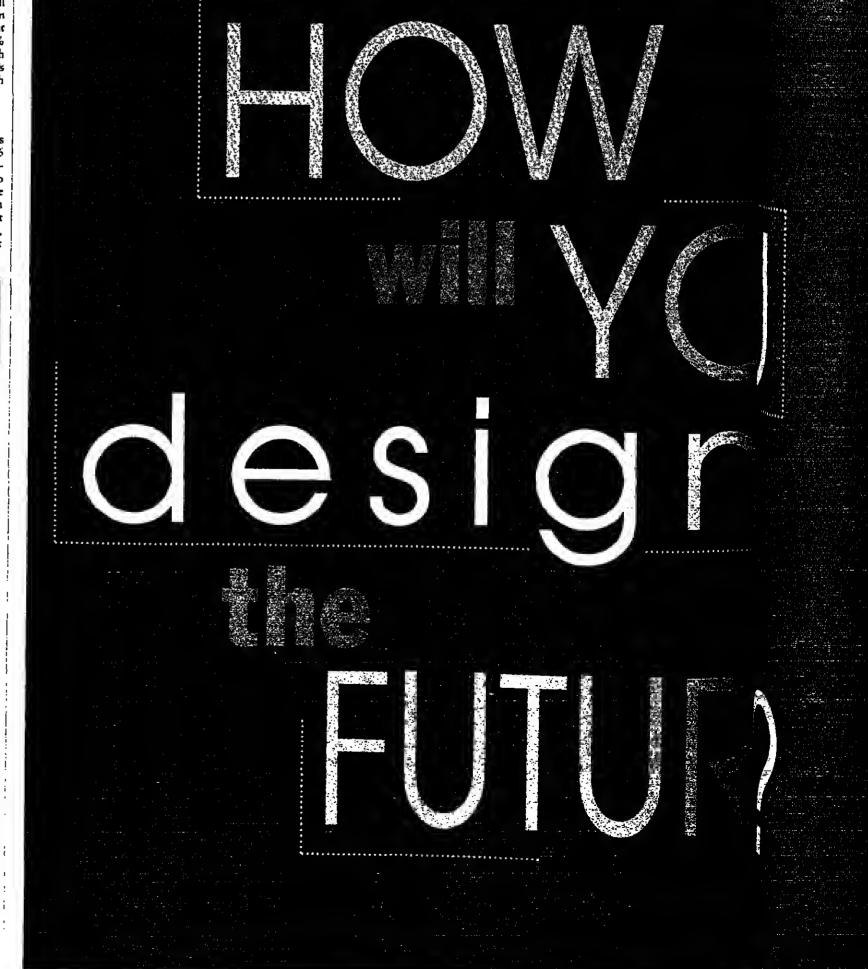
ticely they can be used to implement an FPGA design faster.

Power Analysis

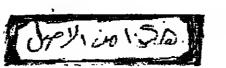
Synthesis optimises for area and performance. But what about power? Power is becoming more and more of an issue fur designers of compact and especially portable systems. You can't wait until cour design is finished to find our if you're over the limit. Using DesignPower, you can analyse the power requirements of your design tight at the start, where it will make the most impact.

Advanced Synthesis for Deep Submicron Design

As silicon breaks through the half-micron barrier, you need to be reads with advanced rools to meet the submicron design challenge. We'll show you how to use advanced capabilities in link cour design effectively in Jacous and manage designs with huge gatecounts better and more efficiently.



Synopsys Technology Review June 1995



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Legies

In what many industry

Ato be the biggest change in

conventional design techniques,

chip designers are moving to

more reuse of existing building

blocks' in parts of complex chip

layouts to save re-inventing pre-

viously successful, proven

Significantly, the first

announcement of DesignWare -

an iooovanve way to speed

design reuse and protect valu-

able intellectual property rights -

was made by Synopsys in 1992.

According to Daratech, an

independent research firm

focussed on the booming com-

puter software industry,

Synopsys was one of the fastest

growing compaoies in the CAE

sector last year and, they fore-

cast that Synopsys will grow its

revenues very rapidly through

the widespread adoption of

DesignWare and increasing

design reuse. . .

designs.

ohservers believe will prove

A - The Pays

truck? Perhaps the intellectual

Faster, better, more reliably and right-firsttime. . . with Synopsys.

More than 75 per cent of worldleading computer, communications, and consumer electronics companies already use high level design automation tools and software from Synopsys, the pioneers of commercial logic synthesis.

Try out new ideas. Choose the best approach, from initial concept right through to deep sub-micron layout. Discover how Synopsys enables you to repackage your designs and reuse or resell them, whilst protecting your intellectual property rights worldwide.

Working at higher and higher levels of abstraction, design teams can specify the exact functions and behaviour they want from new systems. Synopsys enables engineers to design and test not only advanced chips but also complete electronic systems, dramatically increasing productivity and accelerating time-tomarket. . . globally.

SYNOPSYS

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Synopsys (Northern Europe) Limited Imperium, Imperial Way, Worton Grange, Tel: 01734 313822 Fax: 01734 750081 e-mail: petra@synopsys.com



to muliply the productivity of

designers, the gap between whar

it is possible to build on a chip

and what it is possible to design

in a reasonable time is srill

growing. The way to tackle this

problem is to reuse parts of a

design that have been done

before - a technique that is eased

Take the example of a GSM

cellphone. This year the logic

that converts the binary digits of

a GSM phonecall in to speech

may form the heart of the

world's smallest, lightest hand-

set. Next year the market will

have moved oo and the logic

design will have to evolve. The

effort that went into it will have

to be paid for entirely by the

sales of that one handset design

- unless, of course, the design

Perhaps it can be used in a

wireless modem for a PC, or a

low cosr cellphone to go in a

can be reused.

by the use of synthesis.

property of the design, expressed as a hardware description of synthesisable logic, could be sold to a third party. Or perhaps it could be marketed as if it were a music CD, in a shop, through a catalogue or via the Internet.

Reusable designs

"We're seeing a move into the domain of reuse of pieces of Intellectual property," said Aart de Geus, the president and CEO of Synopsys. "The fact that these building blocks of design carry value in their own right is

a new dimension to the electronics business. It's nor just a technical challenge, hut a business and legal challenge to create the environment where they can be exchanged.

At Synopsys, the hasis of this effort is manifold - a program called DesignWare, the recent merger with Logic Modeling, and the acquisition of the Arcad modelling and consultancy service in France.

DesignWare is a library of 'canned' synthesisable logic descriptions ready for use. Synopsys is expaoding the DesignWare library, and encouraging third parties to add designs to it as well.

Last year, in a landmark agreement with Intel, Synopsys announced it is using the DesignWare approach to accelerate the uptake of the emerging PCI bus add-in card standard by putting the logic that surrounds it into the DesignWare library.

Enabling technology

The merger with Logic Modeling bas strengthened Synopsys's position as the industry's prime source for intellectual property in electronics, since Logic Modeling has for years worked with chip vendors to create over 12,000 software and hardware models of their latest chips for use in boards and sysrem designs. The acquisition of Arcad S.A. in Montpellier, France, adds a bespoke modelling and consultancy arm ro Synopsys's offering.

The message from Synopsys is clear. Complex electronics ; design cannot be done in a nmely fashion without the use of synthesis. Design reuse can further speed up the development of large scale 'systems on a chip'. and also offers the promise of a revenue stream beyond the life of the original product.

"We're betting the company on achieving a tenfold increase in electronics designers' productivity every six years, because if we don't we won't succeed," says de Geus. "Historically, companies in this business that give up on keeping in step with the rate of development of silicon just don't make it. Clearly, with a team already

totalling more than a thousand people around the world, de Geus intends that Synopsys will go on and on succeeding and innovating at the leading edge. For the forseeable future, logic synthesis is the enabling technology providing the crinical lever to ensure it does.

First Telecom Models from Europe

t DAC, in San Francisco, the Logic Modeling Group of Synopsys. based in Portland, Oregon, are announcing

Telcommunications Workbench a suite of three tools designed to simplify and speed the work of design engineers in creating robust simulation testbenches for SDH, SONET, and ATM srandards.

Originally developed by the Arcad Group in Montpellier, France - another company acquired by Synopsys late last year - these are the first commercial products to streamline verification and validation of telecommunications designs which meer international transmission and switching standards.

Each Workbench offers designers higher compliance with their chosen standard, smoother interoperability with other systems components, and faster time to market. For engineers working with enormously complex telecommunications standards, such benefits can mean all the difference between success and failure.

Logic Modeling is the leading supplier of simulation models for the electronic design automation industry and it maintains on-going product development relationships with leading companies in the EDA and semiconductor industries. For more information, call (503) 690 6900, or email modelinfo@synopsys.com.

Europe: Centre of Design Excellence and Support

"The view from Europe is quite different," says Rolf Aberg, vice president in charge of all operations European Synopsys. Ever since the company made its first sales to Siemens, Ericsson, Alcarel and other leading companies headquartered in Europe, Synopsys has been growing its indigenous activities in Germany, France, the UK and other parts of the European Union.

Driving most of the husiness are users who are at the leading edge of technology in telecommunicaproducts and systems such as cel-

lular handsets, base stations and other complex gear in fast moving. competitive technology sectors. Several key companies with

unique technology have been acquired in Europe over the past three years, starting with Munichbased Compiled Designs. Last year, Synopsys also acquired CADIS GmbH and a French company, Arcad S.A. to create extra capabilines in DSP hardware/softapplications.

Now we have created the critidevelop not only more innovaove methodology.

technology for telecoms applicanions but importantly, expand our range of consulting and support services," says Rolf Åberg.

In a separare iniciarive, under the EUROCHIP programme, Synopsys' tools have been placed in more universities throughout Europe than any others, including many former East European centres of higher education. As a result, over the next few years, ware co-design and telecoms large numbers of graduates will enter the design market already familiar with high-level design cal mass, we can build on these languages and synthesis, together tions, serving worldwide markets centres of excellence in Aachen with simulation, design-for-test, and designing highly innovative and Montpellier. Our aim is to and other key chip design

New DSP development kit

opment kit from Synopsys, designers can easily incorporate Texas Instrumeors' пew TMS320C541 and TMS320C542 DSPs and cores into electronic systems and ASICs for wireless communications. The kit improves designer productivity and time-to-market by using a stream-driven simulatioo approach that accelerates system-level design, providing a single environment for hardware-software co-design, cosimulatioo and system-level

"TI's powerful DSPs and DSP cores are driving signal processing into mainstream applications," said John Cooper, DSP marketing director at Synopsys. "In wireless communications, for instance, leading cellular and PCS manufacturers are using advanced DSP techniques to meet stringent performance, cost, and power consumption targets.

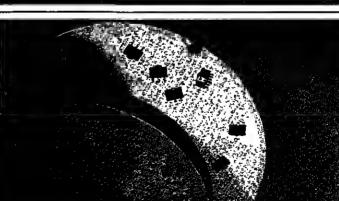
verifications.

"To get these systems to market quickly, designers must have a comprehensive development; environment for algorithm ration, hardware and software simulator for co-simulation.

Using the latest COSSAP devel- | implementation, co-simulation, and co-verification.

Synopsys' COSSAP DSP development environment offers designers a fast implementation parb for turning their DSP concepts into systems. The Synopsys modelling environment takes full advaorage of the dara flow nature of signal processing systems to provide easy algorithm specification, fast simulation, tight links to Synopsys' industryproven logic and behavioural synthesis tools, and co-simulation for verification.

COSSAP also provides optimal hardware and software DSP and HDL code generation through integration with Synopsys' leading synthesis technology. In addinon to the simulator and development kit for TTs C54xtDSPs, the Synopsys DSP solution features: a block editor with extensive signal processing libraries, including full standard-compliant GSM models for algorithm and architecture development; an HDL code generator for behavioural and RTL design; a powerful DSP code generator for optimal C generation and an interdesign, architectural explo- face to Synopsys' VSS VHDL



Deeply in-SYNC for **Submicron Design**

In-SYNC is a new customerdriven programme with 17 charter members - all EDA vendors - just launched by Synopsys providing joint design-solutions based on Synopsys' and in-Sync partner design tools with particular focus on links-to-layout and deep submicron designs.

The two primary goals are: to meet mutual customer requirements for joint solutions; and to drive quickly new technology

ro market, leveraging advanced technology from Synopsys and io-Sync partners.

"Through in-Sync, we're putting a solid structure in place for working with other EDA companies to provide mutual customers with a set of tools that work well together", said a spokesman. "The really exciting opportunity here is to work at a deeper level with partners to bring new technology to market faster."

Synopsys Technology Review June 1995

Moving to higher levels of abstraction Behavioural synthesis cuts specification time by up to ten times

Introduced last year, many of applications," he said at the Inificant benefits including petformance gains up to 20 percent from the first commercial Behavioral Compiler from Synopsys, the most important new development since Design Compiler was launched to provide logic synthesis in 1988.

Behaviotal Compiler, a hehavioural synthesis tool for integrated circuit (IC) design, cuts specification time 5-10x, slashes simulation run time, and enables design exploration and reuse, providing high quality results. Synopsys has taken a different approach to behavioural synthesis that makes the tool valuable for virtually any algorithmic-based designs, applications typically found in telecommunications, graphics, multimedia, data encryption, and servo controls.

"As the leadet in logic synthesis, our customers have been asking us for behavioural synthesis for yeats," said Aart de Geus, president and CEO at Synopsys. "We told them we would only introduce a behavioural product when it adds significant value for a wide range eliminated."

users are already finding sig- launch. Behavioural synthesis taises the level of design abstraction once again this time from the RTL (register transfer level) to the hehavioural level.

The functional specification of a design is captured in Verilog. or VHDL without detailing the exact architectute. The Behavioral Compiler then optimises the design to meet performance goals while minimising chip area.

"We estimate that more than half of the VHDL code for our typical design can now he written at a highet level of abstraction," said Geert Van Wauwe, responsible for advanced CAD in Alcatel Bell's Microelectronics Design Centre. "The code written for Behavioral Compilet will he at a level above actual implementation and will be more natural, understandable, and most importantly, easier to modify and reuse. In addition, all of our VLSI designs contain modules where scheduling a scarce resource consumes a vast amount of design time. By working at a higher level of abstraction, this problem is

with an algorithmic specification in C ot C++ and target performance goals. From there, the designers manually schedule the design and hardcode a lengthy RTL (registet transfet level) specification. With Behavioral Compiler, designers can write a behavioural specification that is very similar to the original algorithm. The behavioural specificanon can be up to 10 times shorter than an RTL specification for the same applications.

Cuts Specification Time

Behavioral Compiler automatically infers the design's controllet ftom the hehavioutal specificatioo. This means that the designer doesn't have to specify the controller and doesn't have to hand integrate the controller with the datapath. The result is much shorter specification time.

Behavioral Compiler also automarically infers memory reads and writes from HDL atray accesses, which means that it can automatically schedule memory access. So the designer no longer | tools. This assures a high quality has to spend a lot of time work- of results for a specific target

Many ASIC design teams start | ing on tedious memory timing and scheduling issues. This makes the tool extremely useful for memory-intensive applications, such as those found in high-bandwidth communications, including ATM designs.

The Behavioral Compilet includes three powerful scheduling modes, allowing designers as much or as little control over the design timing as they would like. By using actual technology-specific timing and area costs from Synopsys' architectural and logic synthesis, Behavioral Compiler delivers very high quality tesults.

"By including controllet and memory inferencing, we are making the Behavioral Compiler a great productivity tool for many more applications, beyond just datapath scheduling," stated Emil Girczyc, a Synopsys R&D | March 31, 1995. director who has dooe extensive academic and commercial tesearch in behavioural synthesis.

One of the reasons that Behavioral Compiler is successful where other behavioural synthesis tools have failed is the right integration with Synopsys' architectural aod logic synthesis

technology. Behavioral Compiler accepts hoth Vetilog. and VHDL descriptions.

The new tool makes use of Synopsys' architectural synthesis tools, the HDL Compiler family, and its logic synthesis tools, the Design Compiler family. It also takes advantage of DesignWare lihraries of synthesizable predefined functions, including technology-specific DesignWare offered by semiconductor ven-

Record Results

Synopsys reported revenue of \$62,500,000 and net income of \$8,676,000 (45 cents per share) in its second fiscal quartet ended

New Asia/Pacific Office

Synopsys has opened new offices for their Asia Pacific headquarters in Singapore. Over the past two years, Synopsys has achieved significant success in establishing important husiness relationships in Korea and Taiwan. The new Singapore location will provide many new advantages as Synopsys continues to expand emerging markets in China, Singapore, Malaysia, and India.

Asia Pacific regional manager Kah Yee Eg hosted a gala party at Singapore's Shangri-La Hotel to celcbrate the opening of the new

Smoothing the Ride on the PC Card bus

Following the landmark deal with last year. Synopsys is shipping a new design kit for PC-Card Bus designs with a new, customisable PCI macroset, as well as a PCI test suite and hus model. The MacroSet, from the Synopsys' DesignWare product line, features seven flexible, synthesisable, high-level design blocks that drastically reduce design time. The set allows optimisation between die size and functionality and is compliant with PCI special interest group (PCISIG) 2.0 specification.

"The PCI local bus is a fundamental building block of today's computing systems," said a spokesman. "Without our PCI design kit, ASIC designers must develop their own PCI interface logic from scratch or use inflexible, technology-dependent cores from ASIC vendors. To verify compliance to the PCI standard, those designers will also be reading through pages of specifications and constructing test cases for each conditing and mode of operation. The Synopsys PCl kit eliminates those roadblocks with a total design solution enabling the rapid development of ASICs with PCI

The necessary work can be done in a matter of weeks, instead of

hecause they're investing in

the newer generation of tools to

offer their customers," Schleider

said. For the second quarter of

fiscal 1995 year, the company,

whose gross margin is 88%,

spent over 12 million dollars on

continued from page 2

Synopsys pioneers source level design for hardware designers

Tarlier this year, Synopsys source-level tools for Verilog and VHDL design. Ar the source level, hardware designers can have the greatest impact on improving design quality and accelerating the overall design cycle.

These tools enable a major shift in hardware design that patallels the shift in the software industry in the 1980s when source-level software development tools eliminated the need to work at the assembly code level.

Two products form the foundation of the new Source-Level Design tool family: DesignSource for full source capture and HDL Advisor for direct source analysis. By using these products, designers can quickly specify their complete design, then in minutes check its performance, and track down any problems; all at the source level. Today designers often find problems only after taking hours or days to generate a gate-level design. For the first time, designers will be able to iterate directly on their source, before simulation and synthesis, reduciog the need for more expensive iterations later in the process.

"This is an inevitable and positive shift for hardware designers," states Aart de Geus, ptesident and CEO of Synopsys, Inc. "We envision a day when hardware designers who work with gatelevel constructs are as tare as software engineers who work with assembly code. We have a long way to go but these innovative tools are a majot step forward.

"The concept of soutce level tools makes a lot of sense," stared Steve Edlefsen, Membet Technical Staff (MTS) at TRW (El Segundo, CA), an alpha customer for Synopsys' new Source-Level Design tool family. "If I could do design iterations before simulation and synthesis, I would definitely design faster and get better results. Based on what I've seen so far, I'm excited about the potential of this new technology.

Fundemental shift

This announcement portends a fundamental shift in hardware design that's analogous to the shift that occurred in software design with the advent of source-level analysis and dehugging tools now on the market from Microsoft, Borland and other major software development tool vendors. The software world rapidly adopted sourcelevel tools because designers realised immediate productivity gains. Today, virtually all software development is performed at the source-code level. Now, Synopsys is addressing this need in hardware design.

"The move to source-level design will have as significant an impact in the hardware world as it had in software," stated Gary Smith, Senior Analyst at Dataquest. "Designers basically want to see as much information as possible, as early as possible. Since the source is

what they created and understand announced a new family of most intuitively, designing at the source will deliver immediate productivity gains.

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package

Higher Quality Designs, Faster

Source-level design allows designers to iterate directly on their source pnot to simulation and syothesis. These iterations take minutes and ensure that the designer takes the best source possible through simulation and synthesis - resulting in a smoother, more predictable design cycle, with far fewer back-end iterations. Designers can capture all inputs in a complete source specification and efficiently drive designs through verification and imple-

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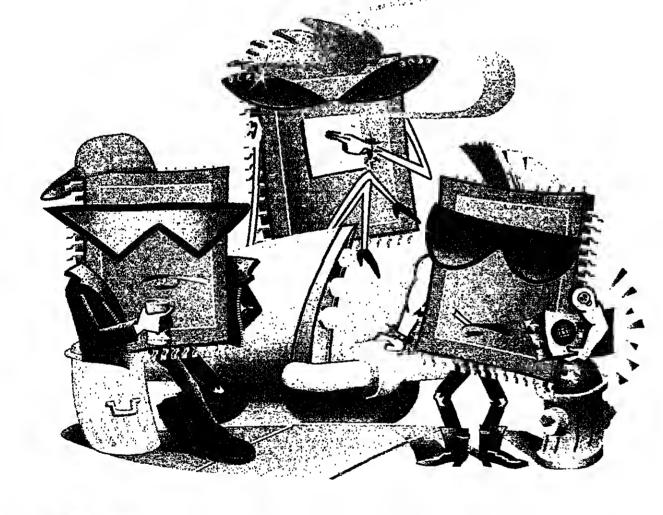
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reseatch and development, equivalent to some 20 percent of

Growing 30% p.a. Recently Synopsys, which is traded on NASDAQ, was selling btiskly at \$58 per share with 80% of its stock held by institutional investors such as T. Rowe Price, Fidelity, and Amerindo. Lasr year, having merged its

operations with Logic Modeling

of Portland, Oregon, Synopsys

acquired two more European companies for six million dollars. Last month, it completed the acquisition of Silicon Architects of Sunnyvale, California, a private company that pioneered patented design technology that increases the quality of results for Synopsys' synthesis customers.

Building a company worth over \$1bn

Synopsys issued approximately 770,000 shares and options in exchange for all of the outstanding shares and options of Silicon Architects in a deal valued at over 38 million dollars.

Most financial analysts expect the company to grow about 30% each year for the next several years and predict that its biggest growth market will be in the emerging economies of Asia.

Synopsys Technology Review June 1995